POTTERY TECHNIQUES IN PEASANT INDIA

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POTTERY TECHNIQUES IN PEASANT INDIA

With an Introduction by Nirmal Kumar Bose, F.N.I.

BAIDYANATH SARASWATI
NAB KISHORE BEHURA

ANTHROPOLOGICAL SURVEY OF INDIA
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Plan of Work

Following the survey of the distribution of certain material traits in the country during 1959-61, the report of which has already been published under the title of *Peasant Life in India,* the second round of investigation began in December, 1961 for collecting data on the Pottery techniques in India. The work was started under the supervision of the Director, Anthropological Survey of India, and was allotted as follows among the members who had already worked in the previous survey of material traits.

Surveyors	State	Number of districts
Baidyanath Saraswati	Jammu & Kashmir	2
	Himachal Pradesh	2
	Punjab	5
	Uttar Pradesh	19
	Bihar	2
	Rajasthan	9
	Gujarat	5
	Madhya Pradesh	14
	Maharashtra	11
	Goa	1
	Andhra Pradesh	1
	Orissa	1
Nab Kishore Behura	Orissa	12
	Andhra Pradesh	13
	Madras	8
	Mysore	14
	Kerala	3
P. R. G. Mathur	Kerala	9 (including three districts covered by Shri Nab Kishore Behura)
Bikas Roy Choudhury	West Bengal	5
Tarashish Mukhopadhya	West Bengal	2
Biman Kumar Das Gupta	Assam	4
Satya Kinkar Ganguly	Bihar	4

The selection of the units of study was almost an unmanageable task with a limited number of personnel and within a specific period. It was decided to cover all the states, taking the district as an unit of study. The districts were selected on the basis of the concentration of potters and their ethnic differences and technical peculiarities, so that each region may be well represented. The number of districts, and the villages or settlements of potters in each district were also selected with the same consideration in

view. Available census reports and other literatures, and also government officials as well as private agencies were consulted for this purpose. The data were collected between December, 1961 and July, 1963. Out of 322 districts in India, altogether 143 districts were covered. The actual number of villages or potters' settlements studied for this project is 306.

Before going to the field, a schedule (Appendix III) was prepared to collect data on pottery techniques, and some aspects of potter's caste. Special instructions were given to us to draw data mainly from rural potters and avoid urban units unless otherwise required. We were supplied with photographic equipments to take photographs of pottery articles, tools, and techniques of manufacture. Stop-watches were also supplied to us to record time taken in each process of 'throwing' pots.

We used to send fortnightly report on our work to the Director for comment and suggestion. In case of difficulty we used to write to him immediately for his guidance. Thus, constantly we remained in touch with him while working in the field. Within this period of work, we met him thrice for consultation and discussion.

Acknowledgement

We take this opportunity to express our respectful feelings and deep sense of gratitude to the Director of the Anthropological Survey of India who very kindly assigned to us the task of studying the potters' craft and oriented us with a new approach to the said study.

Our thanks are due to all those potters of India who spared their valuable time for our interviews, and also to all the Government Officers and University Professors whom we approached and without whose co-operation it would not have been possible for us to collect the data.

We are especially happy to acknowledge our debt to Shri S. N. Paul and Shri A. L. Deshpande, the artists of the Anthropological Survey of India who have painstakingly drawn for us all the sketches illustrating this report.

To all our colleagues, whose data have been incorporated in this report, we owe a debt of gratitude.

We are obliged to Shri Suhas Kumar Biswas, our colleague, who very generously allowed us to use his data on Manipur and Chhatarpur pottery.

Our thanks are due to Shri Dipankar Das Gupta, Research Associate (Linguistics) of this Survey who helped us in transcribing the technical terms used by the potters, in Roman script.

To Shri Saradindu Bose, Cartographer of this Survey, we are thankful for the maps he has drawn for us.

We are grateful to Shri Arun Kumar Chakrabarti, Research Associate (Publications) of this Survey who has taken pains in getting this work published in time.

Calcutta
February 16, 1964

Baidyanath Saraswati
Nab Kishore Behura

Introduction

In 1959, the Anthropological Survey of India initiated a survey of about a dozen items of material culture in order to find out if any regional distinction was present between one portion of India and another. A preliminary report entitled *Peasant Life in India : A Study in Indian Unity and Diversity* was published in August, 1961. It contained 16 distribution maps which show how India can be divided into well-marked culture areas, and how there is a considerable amount of interpenetration between them.

The present authors were members of the original team of investigators. When the first round of their work was over with the publication of the above report, they were entrusted with the task of carrying on a more detailed survey of the art of pottery manufacture all over the country. Accordingly, Baidyanath Saraswati and N. K. Behura covered 122 districts in which 278 manufacturing centres were visited. Biman Das Gupta, S. K. Ganguly, Tarasish Mukhopadhyay, Bikash Raychaudhuri and P. R. G. Mathur were responsible for reports on 18 more districts in which 28 centres were visited. So that, in all, 143 districts and 306 centres were covered. This may be considered to be a fairly good sample (44·4%) out of India's total of 322 districts.

The present report based on the above survey has been prepared with care ; and I have pleasure in drawing attention to a few of the salient results. These tally more or less with the findings based on the distinction of ploughs, oil-presses and dietary habits as recorded in *Peasant Life in India.* One of these zones is formed roughly by the southern and eastern portion of the peninsula stretching up to Bihar, West Bengal and Assam in the north-east ; while the other roughly covers the west, north and north-western portion of the country. The same zonal division has been independently arrived at as a result of the present survey of the technique of pottery manufacture.

There are, broadly speaking, two kinds of potter's wheel in use. One of these has a pivot fixed below the nave ; and it rotates like a top in a socket set below. The other type has a socket in place of the pivot, and it turns

upon a conical pivot which is set below. The pivoted wheel is southern, eastern and north-eastern ; while the socketed one is northern and western in distribution. Wheels are, moreover, either solid or spoked ; and it is interesting that this feature also bears a regional significance. It is of even greater interest that, in the west, in portion of Kathiawad, Maharashtra and Mysore, the wheel is of the northern solid type, but it bears a pivot as in the south.

Such regional distinctions and overlaps are in consonance with the distribution of other elements involved in the manufacture of pottery. Thus, the anvil and the base on which earthenware are finally beaten into shape, the oven in which they are fired, and even the postures assumed by potters while the work, show a distinct regionalism in distribution.

As one goes carefully through the report, and particularly the distribution maps, one feels how the various elements constituting the trait of pottery manufacture have become clustered in distinguishable constellations in one part of India or another. When the maps are compared with those of ploughs, oil-presses and the like, it is apparent that some of these cling together and even carry us over to areas of similar technology either in the south-east of Asia or in the Middle East. It is highly significant that these distributions are markedly different from the distribution of families of languages in India, of which the dates of introduction or differentiation are roughly known. The implication is that the basic arts of life like agriculture, preparation of food or pottery were introduced at a time, and in a manner, different from that associated with the diffusion of languages in different portions of India.

Besides the preparation of the distribution maps, the authors have made two very significant contributions. They have described the different methods employed for manufacturing pottery without a wheel ; and have also shown how the distribution of painted pottery (painted before firing) is limited to a restricted portion of north-western India. Their guess is that the latter may have some relationship with the area covered by remnants of the Harappan civilization in which painted pottery formed a conspicuous element.

Messrs. Saraswati and Behura were advised to limit their enquiry to techniques of manufacture alone. The task would have been too heavy if the forms and cross-sections of earthenware were also included in their enquiry. Such work would undoubtedly have been of immense value ; particularly because earthenware of various kinds have been unearthed by the spade of the archaeologist. But the limits were set because of obvious reasons. Otherwise, it would have been difficult to cover the whole of India in the time set for the task.

In any case, the authors are still at work and their present design is to examine the social and ritual aspects of pottery and its use. Some forms of pottery are considered useful for sacred, ceremonial purposes, while others are taboo. Black pottery is made by some castes, red ware by others ; and the two are socially and ritually distinguishable from one another. They do not also intermarry, and occupy unequal ranks in the scale of castes.

All these carry us into the social significance of arts and crafts in India. It is a pleasure to record that the authors have already made important observations in this respect. When their work is over, they will obviously be able to throw new light on the productive organization present in our villages, and thus upon the social structure which has endured for a long time in this country.

It is my hope that when this report is published, other scholars will feel encouraged to carry on similar investigation with regard to other ancient arts and crafts like metal casting, weaving or basketry manufacture. When we are thus able to gather new information on the technical, social and rituals aspects of arts and crafts, many obscure problems in India's cultural history are likely to be illuminated. And in this task, the work of the archaeologist will be of much aid as that of the ethnographer.

37A Bosepara Lane,
Calcutta 3
7 June, 1964

NIRMAL KUMAR BOSE

pottery techniques
in
peasant India

From Potter's House to Well

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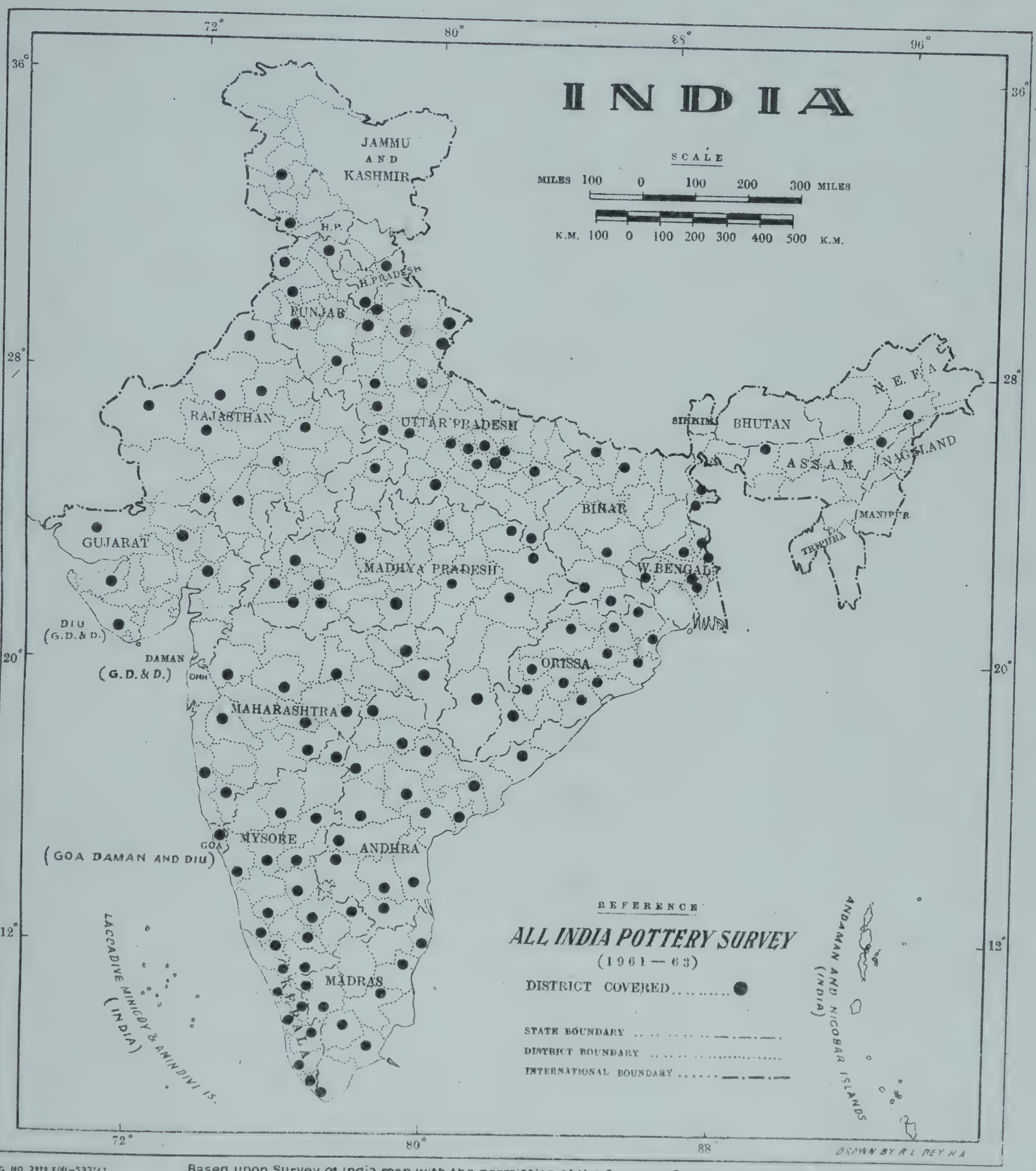

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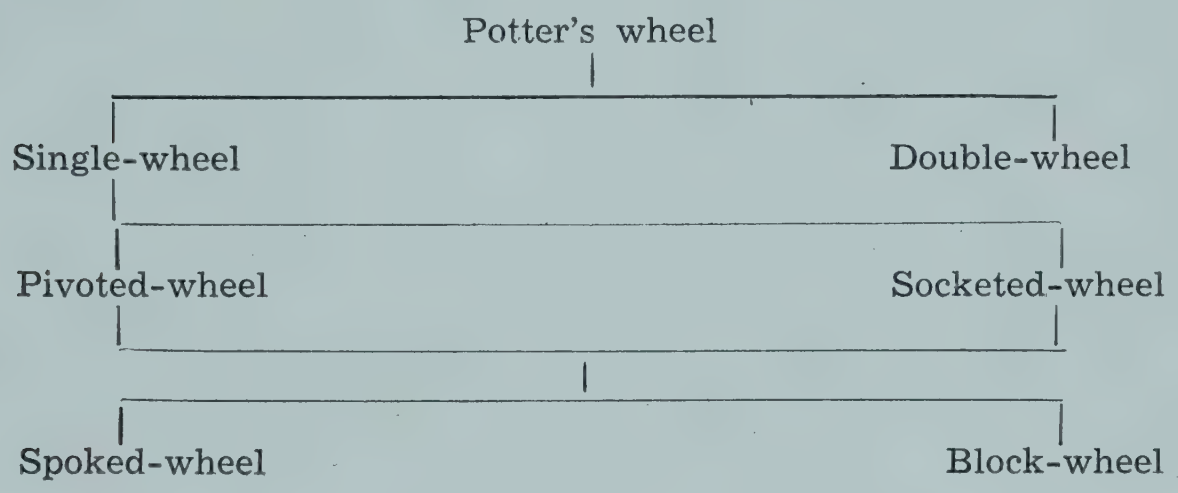
TOOLS AND IMPLEMENTS

POTTER'S WHEEL

Considering its form the potter's wheel in India can be classified into two major groups, namely, the *single-wheel* and the *double-wheel*. The former is turned by hand. The *single-wheel* has two sub-groups, viz., *pivoted-wheel* and *socketed-wheel*. These sub-groups in turn can also be classified into two sections: *spoked-wheel* and *block-wheel*. The classification of the potter's wheel can thus be arranged as follows:



We shall now describe the different varieties of the potter's wheel in India.

SINGLE-WHEEL

In principle, the single-wheel has a nave or disk on the superior side of which the pot is thrown, and a pivot and a socket which help revolving the wheel. It is spun anti-clockwise by means of the bare hand or with the help of a stick. All single-wheels that have been recorded by us in different parts of India fall under the following four types:

Type A: Pivoted spoked-wheel
Type B: Pivoted block-wheel
Type C: Socketed block-wheel
Type D: Socketed spoked-wheel

There may be some local variation in the construction of the wheels which come under a particular type, and they will be noted in due course.

Type A : Pivoted Spoked-wheel

Essential characters : In this type the wheel has three principal parts, namely, nave, felly and spokes. The pivot is attached to the underpart of the nave in the centre by means of a mortised joint. The pivot is fitted in a socket lined with a piece of quartzite, which in turn is embedded in an earthen, wooden, or concrete stand (Fig. 1 : 1).

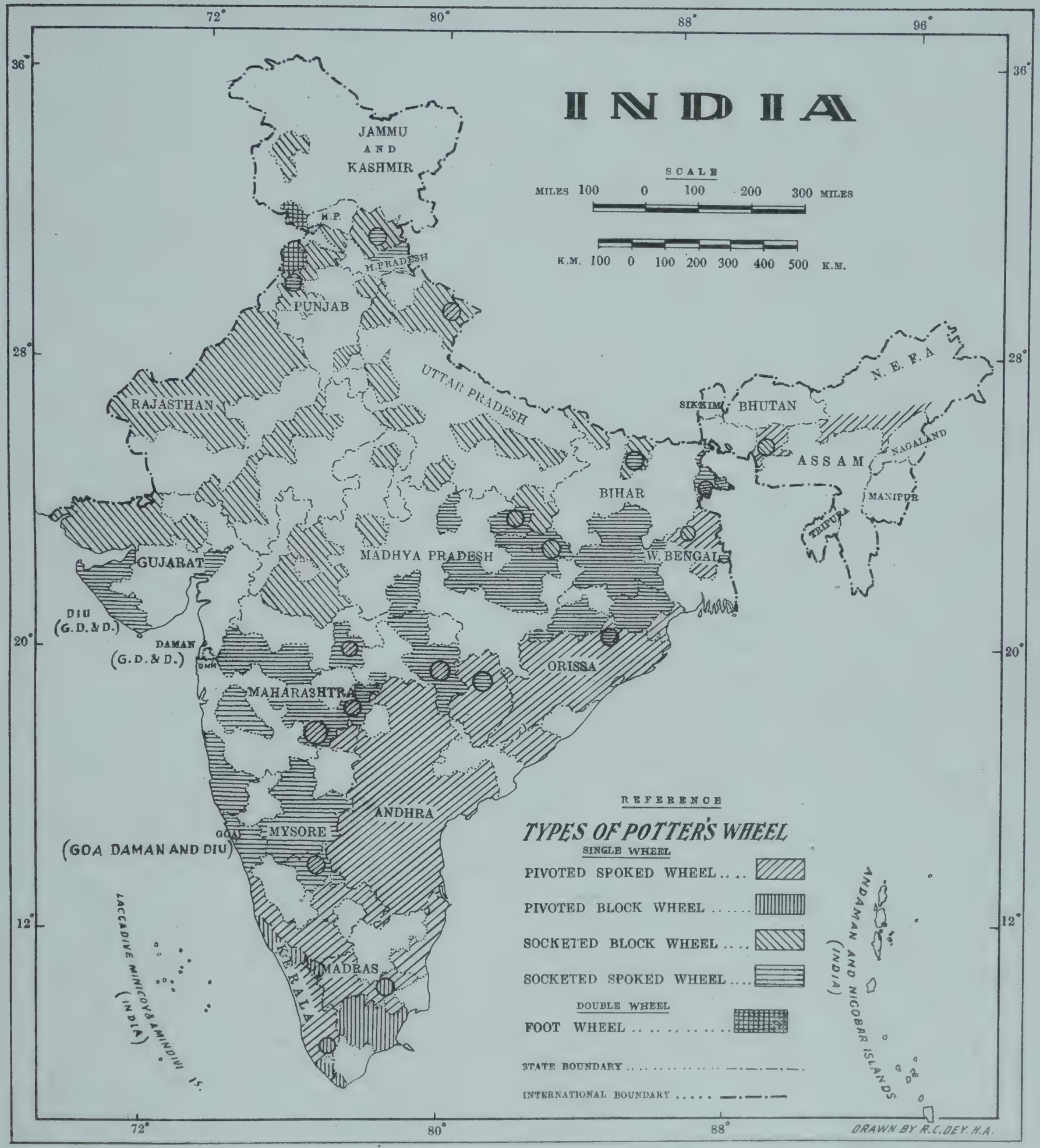
Distribution : This type of wheel occupies a very large part of South India and extends north-eastwards into Orissa, W. Bengal, and Assam. Sporadic distribution of this type has also been noticed in Bastar in Madhya Pradesh, Osmanabad, Nander, Akola and Chanda in Maharashtra and Almora in Uttar Pradesh.

Details of construction : This is a massive four-spoked-wheel. Its diameter varies from 76.2 cm to 106.6 cm. Its spokes are wooden, and the felly is made of bamboo splints or cane covered by tempered clay. Each spoke joints two opposite points in the felly. The spokes are fixed to one another at right angles by incision. The spokes are generally of equal size and shape. But in some cases, one piece is comparatively massive and different in shape from the other. In this case, the mid portion of the massive spoke is shaped in such a way that it forms the nave. The slender spoke pierces through it at right angles (Fig. 1 : 2). In case both the spokes are wide at the mid-point, they are fixed to each other crosswise. The joint forms the nave (Fig. 1 : 3). Sometimes, when thin and narrow spokes are fixed with each other, the nave does not become spacious enough for throwing pots ; consequently, a separate disk of 22.8 cm to 27.9 cm diameter is nailed on the superior side (Fig. 1 : 4). The diameter of the nave varies from 17 : 7 cm to 35.5 cm.

The pivot is attached at the centre of the nave underneath. It is a separate piece of wood carved in the shape of a top, or a bulb whose tapering point looks like a nipple. The projected portion of the pivot is often dome-shaped and at times spherical. Sometimes, for the sake of durability, an iron stud, driven into the top-shaped pivot, forms the nipple. The length of the projected portion of the pivot varies from 4.5 cm to 6.5 cm. It is fixed to the nave by a mortised joint (Fig. 1 : 1).

The felly is constructed of bamboo splints and clay. The cross-section of the felly is rectangular in Kerala, Mysore, Madras, Andhra Pradesh, and southern Orissa. In other parts of the country, it is circular. The girth of the circular felly is about 40.6 cm to 48.2 cm and that of the rectangular felly varies from 35.5 cm to 60.9 cm.

INDIA



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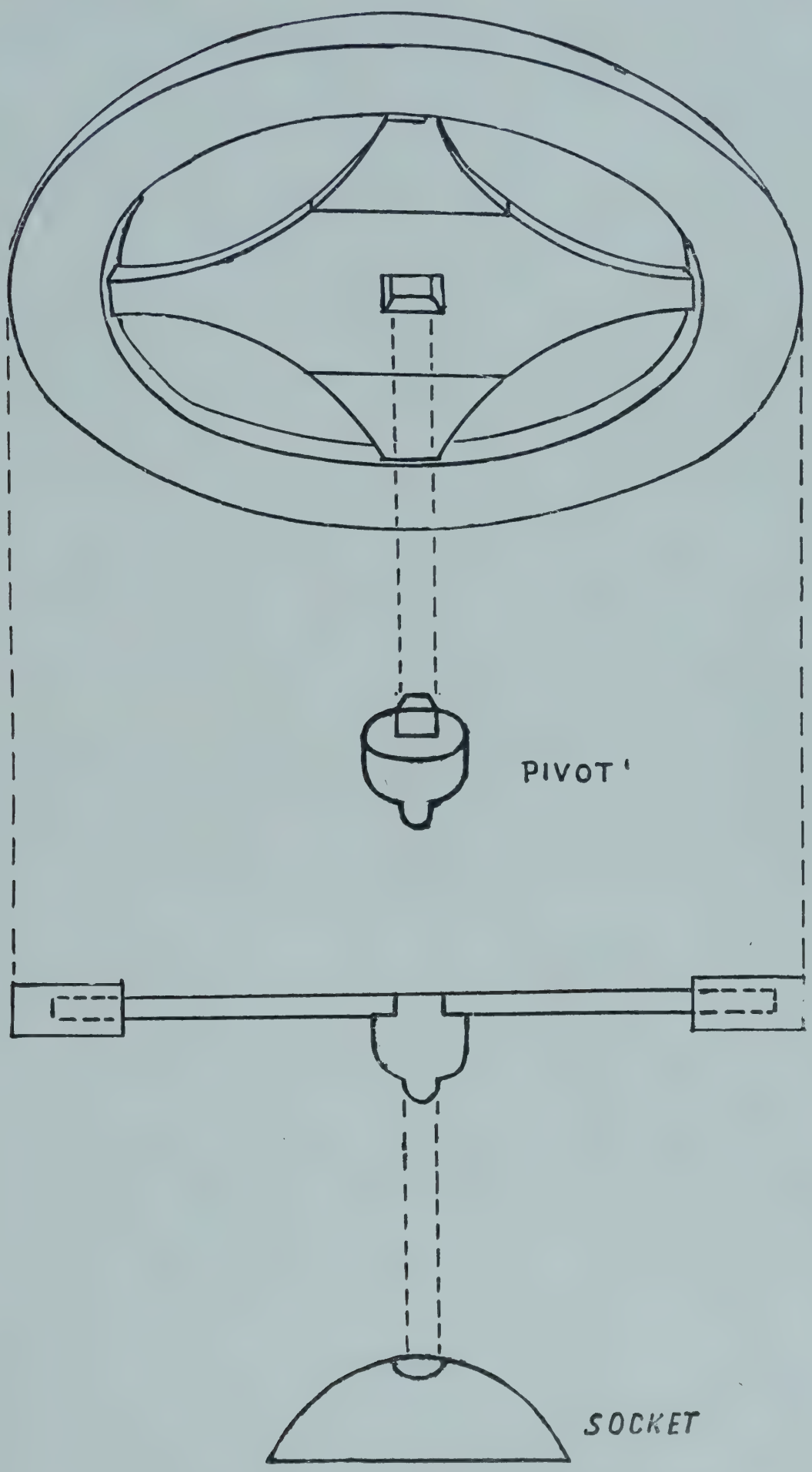


Fig 1:1 Pivoted Spoked-wheel

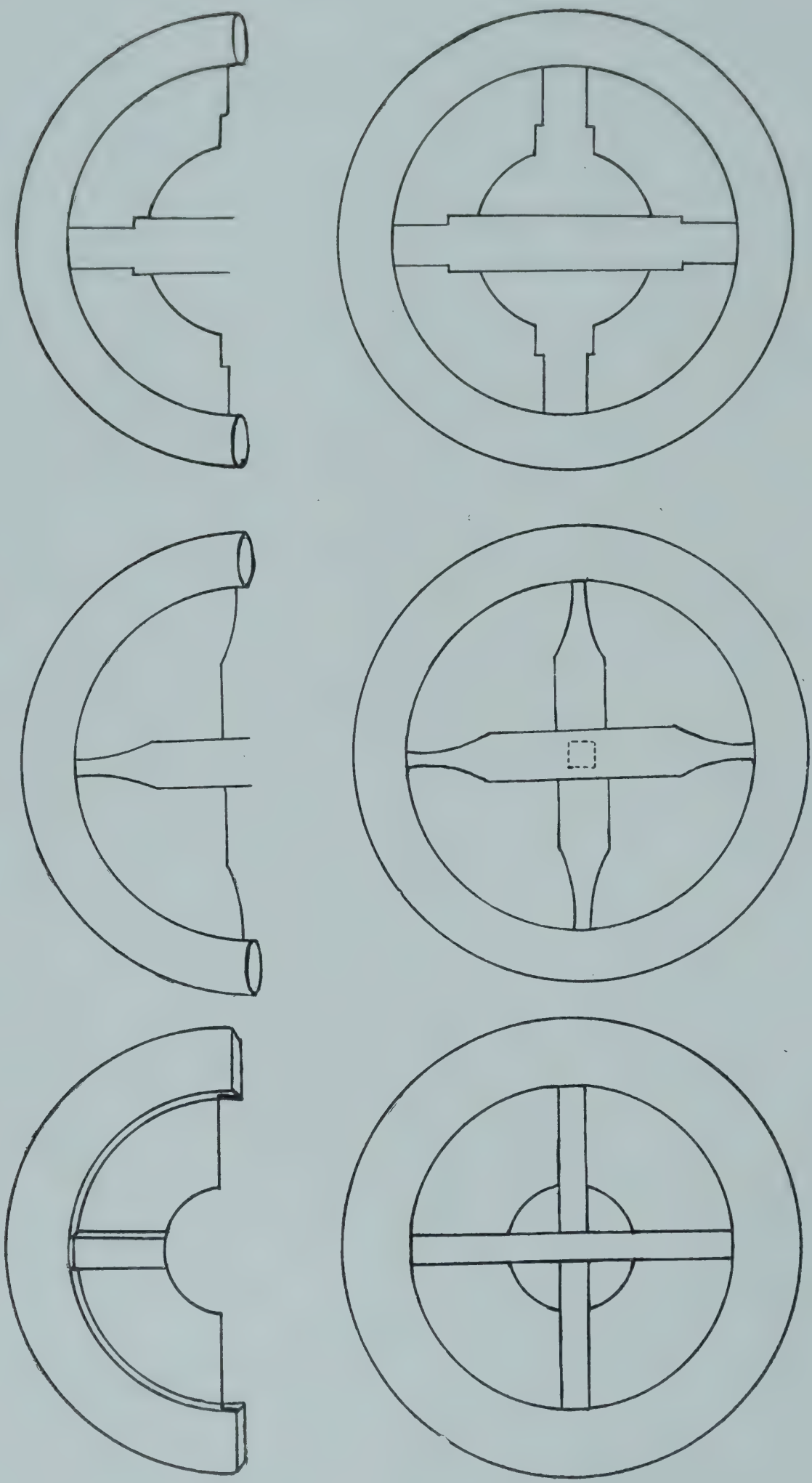


Fig 1:2-3-4 Pivoted Spoked-wheel

The four bamboo splints that are used to form the felly are firstly bent into the form of circular hoops of two different dimensions, one pair being smaller than the other. The diameter of the exterior hoops is about 73.6 cm, that of the interior ones being 66 cm. A set of large and small hoops is placed above the spokes, another below. The hoops are now firmly fastened to the spokes (Fig. 1:5). Then they are covered with tempered clay when the wheel is

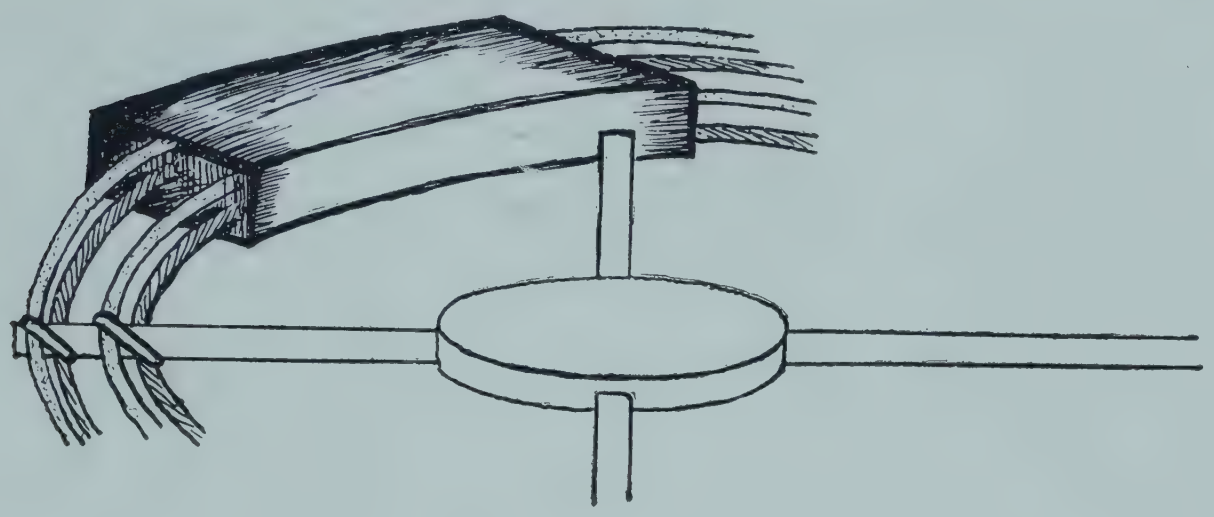


Fig 1:5 Pivoted Spoke-wheel
(Hoops fastened to the spokes and covered with tempered clay for building the felly)

finished. Clay is preferred for building the felly, because it is easy to adjust for the balancing of the wheel. Choopped straw, coin and buffalo or pigs' fur are mixed with the clay for tempering. There is a notch on the upper side of the felly to receive the end of the stick used for turning.

The knob or the nipple of the pivot is fitted in the socket where there is a piece of quartzite embedded in an earthen or concrete base 17 cm to 22 cm high. When set in motion, the wheel maintains perfect balance and remains parallel to the ground. Castor, ground-nut, or coco-nut oil is used for lubrication. Pads of cloth are also placed as washers in the socket if it has become too much enlarged by use.

Variations : This type of wheel has almost everywhere four spokes. But certain variations have also been noticed. For instance, in the Coimbatore District of Madras six spokes have been found in this type of wheel. In such wheels there is only one long spoke which joins the two opposite points in the felly, and the remaining spokes lie between the nave and the felly.

Sometimes, in the construction of the felly, as in parts of Kerala, creepers (*okarvalli*) are used instead of bamboo splints. In Kala-

handi in Orissa, ropes of paddy-straw (*bora*) are wrapped around the hoops to build up the felly of the wheel (Fig. 1 : 6). In Bengal, the clay used for dressing the felly is reinforced with small pieces of stone or chips of brick. And spokes are made of date-palm wood. In Assam, the socket, on which the pivot rests, is lined by a thin rectangular piece of iron called *sil*. This *sil* is fixed on a square block of wood by means of iron nails. In parts of Kerala, the nipple of the pivot is sometimes made of iron.

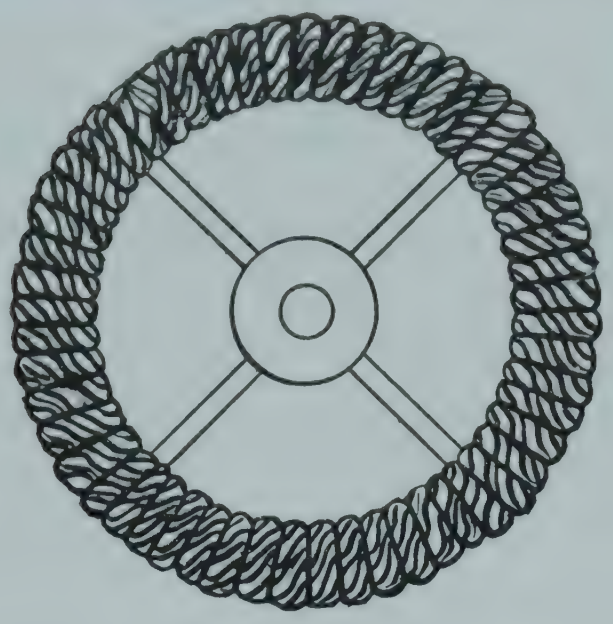


Fig 1 : 6 Pivoted Spoked-wheel
(Ropes of paddy-straw wrapped around the hoops for building the felly)

Type B : Pivoted Block-wheel : Southern Type

Essentail characters : In this type of wheel the arrangement of pivot and socket is exactly the same as we have discussed above in Type A, that is, the pivot is attached to the wheel, and the socket is provided separately. But unlike Type A, it has got a solid disk of wood, clay (both baked and unbaked) or stone (Fig. 1 : 7), a little higher up, and the pots are thrown on this, while another person continually goes on turning the wheel by hand.

Distribution : It is confined only to the districts of Madurai, Ramnad, Tiruchchirapalli, Nilgiris, and Kanniyakumari in Madras, and also in Trivandrum, Quilon, Cannanore, and some parts of Allepey in Kerala.

Details of construction : (a) The wheel (Fig. 1 : 8) is carved into a circular disk out of a single piece of wood. The diameter of the wheel varies from 50.8 cm to 60.9 cm and the thickness ranges from 2.5 cm to 5 cm. An iron bar or shaft, about 48.2 cm to 50.8 cm long, is fitted to the underpart of the wheel at its centre. This is the pivot. It tapers from the top towards the bottom. The head of the shaft has got two ears, shaped into small rectangular blades. This is fixed to the centre of the wooden nave. The long pivot passes through a hole in a plank fixed over the hole. This is to prevent it from falling down when the speed of the revolution is slowed down. The pivot rests in a socket which is embedded at the base of a pit, about 38 cm to 40.5 cm deep. The plank, rectangular in shape, completely covers the hole below. The hole in

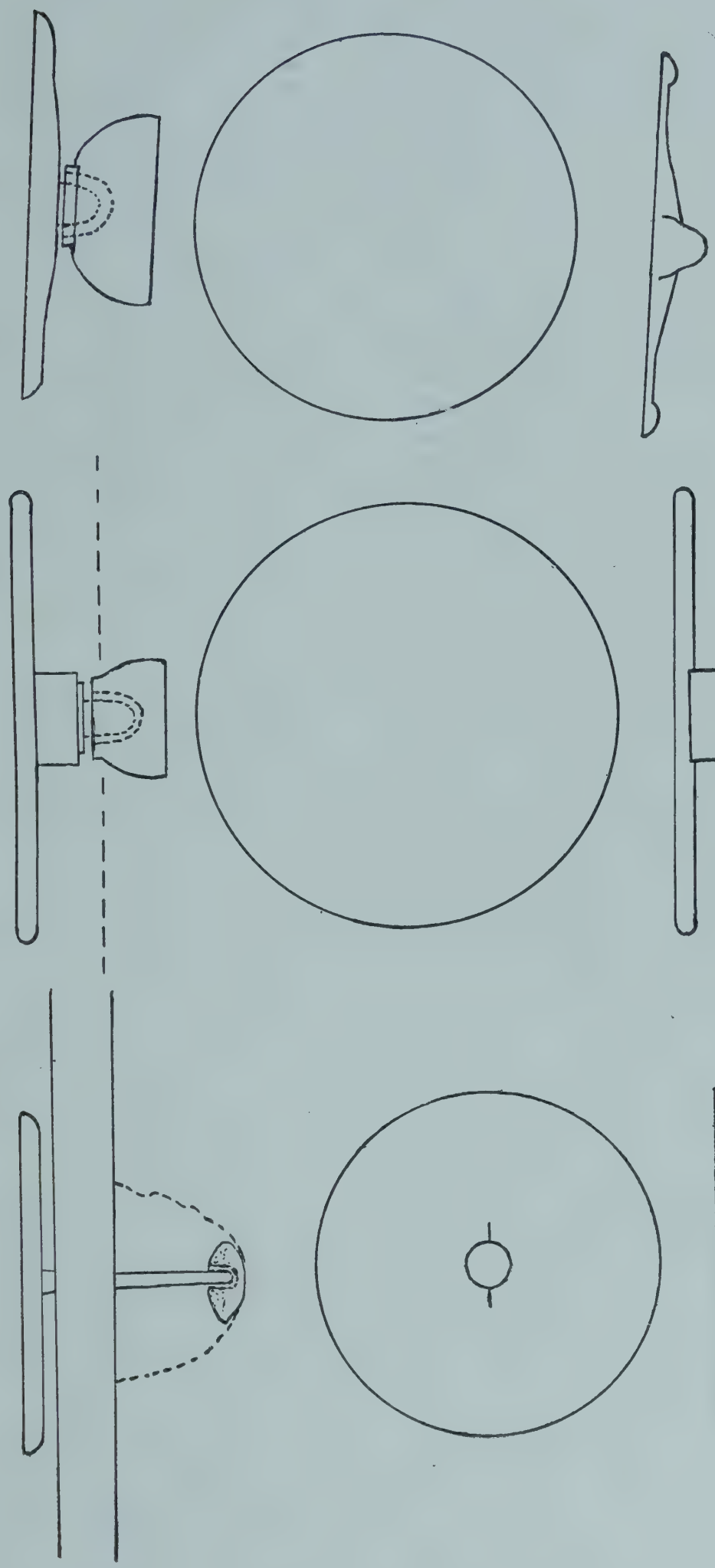


Fig 1:9 Pivoted Blocked-wheel (With stone socket and pivot)

Fig 1:7 Pivoted Blocked-wheel (Made of baked clay)

Fig 1:8 Pivoted Blocked-wheel (Made of wood and accommodated in a pit)

the wooden plank is a little wider than the section of the shaft to accommodate the pivot for free and smooth rotation. This hole is lubricated with castor-oil, and when it becomes enlarged by use, pads of cloth or dry strips of plantain bark are used as washers.

This wheel has been found in Madurai, Tiruchchirapalli, Ramnathpuram, and Kanniyakumari in Madras.

(b) This is also a pivoted block-wheel (Fig. 1 : 9) with a little difference from the previous one. Its pivot and socket are made of stone. The pivot is 7.6 cm long with a circumference of 11.4 cm. It has a base which is again 7.6 cm long with a circumference of 38.1 cm. The base of the pivot is fitted into the centre of the disk from its underside. The diameter of the disk varies from 58.4 cm to 68.5 cm and its thickness is not symmetrical. Its periphery is 3.8 cm to 5 cm thick, and it becomes thicker towards the centre. The superior side of the disk remains flat or horizontal, whereas its inferior side takes a conical shape. The thickness of the disk at the centre is between 8.8 cm to 10 cm. Two kinds of disks are used, one is of baked clay and the other of unbaked clay tempered with coir, chopped hay, straw, pigs' fur or buffalo hair. The stone block containing the socket is always fixed on the ground.

This wheel has been found in Tiruchchirapalli, Kanniyakumari in Madras State and in Trivandrum in Kerala.

Type C : Socketed Block-wheel

Essential characters : In this type, the disk of the wheel is either of unbaked clay or of stone. The socket is embedded at the centre of the under part of the wheel ; and the wheel rests and revolves on a pivot fixed separately in the ground, or in a slab of stone, wood or clay (Fig. 1 : 10).

Distribution : This wheel is distributed in northern and western India. It has been found in all the districts that have been covered in Jammu and Kashmir, the Punjab, Uttar Pradesh, Rajasthan and in Sirmur of Himachal Pradesh, Champaran and Darbhanga in Bihar, Goalpara in Assam, Birbhum and Malda in W. Bengal, the Madhya Bharat districts of Madhya Pradesh, and Kutch and Mehsana in Gujarat.

Details of construction : (a) This is a solid clay disk whose diameter varies between 76.2 cm and 101.6 cm, and thickness ranges between 7.6 cm and 10 cm. The clay used in this wheel is well tempered with chopped grass, human hair, molasses, and cotton.

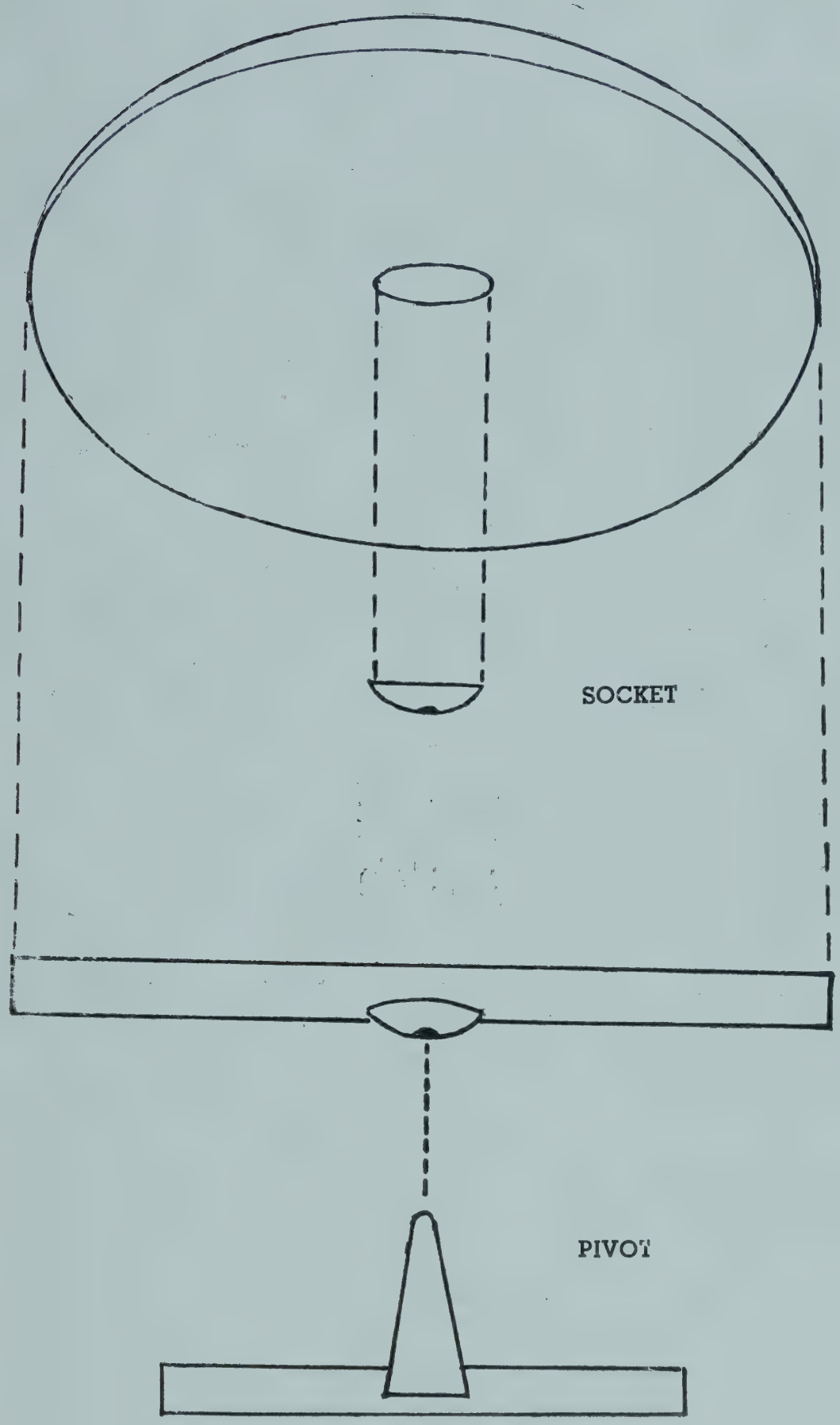


Fig 1 : 10 Socketed Blocked-wheel

The tempering materials are thoroughly mixed with the clay and left for about a fortnight or so till the potter is sure that the clay has attained its binding quality. Once again, the clay is thoroughly kneaded. The prepared clay is then spread out on the ground in the form of a thin circular disk. This is then beaten with a wooden mallet, and thereafter with an anvil, so that it may attain perfect cohesion. To make the disk a complete geometrical circle an indigenous wooden compass called *farma* is used. It is a wooden stick with a short pointed wooden nail attached to one end of it. During operation, the other end of the compass is placed at the centre of the disk and pressed with the thumb of the operator. When the instrument is rotated, the pointed and projected end cuts the

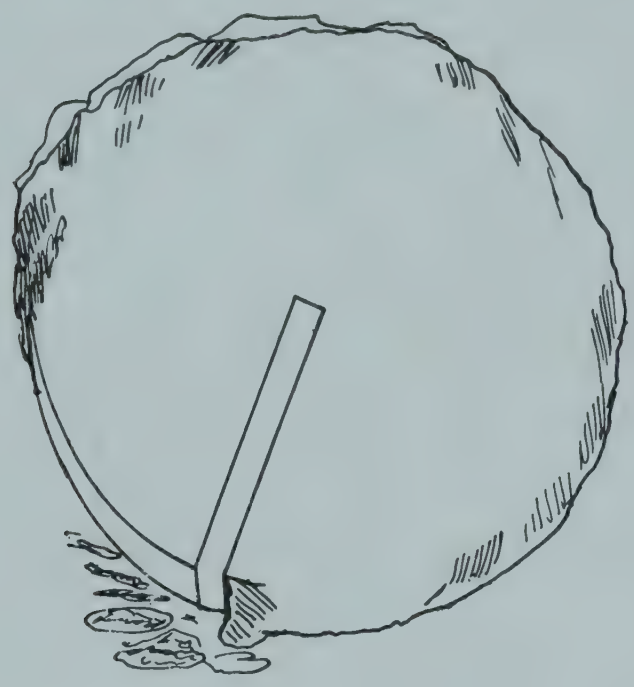


Fig 1:11 Cutting a circular disk of clay for the Socketed Block-wheel

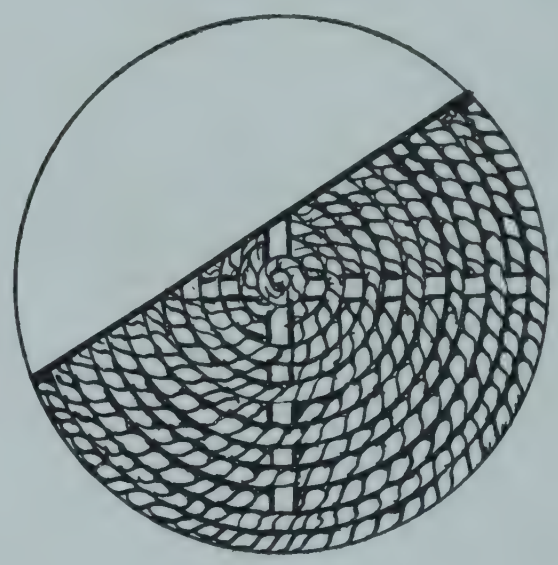


Fig 1:12 A net of coco-nut strings interwoven with wooden sticks and covered with tempered clay to form a Socketed Block-wheel

circular disk (Fig. 1 : 11). The clay disk thus well cut and prepared is fitted with a stone socket at its centre. The disk is left for drying for two to three weeks after which it is ready for turning. The pivot is made of tamarind wood and shaped into a rough cone. The base of the cone is firmly buried in the ground. The length of the visible portion of the pivot is only 5 cm to 10 cm. It is on this pivot that the wheel rests and rotates (Fig. 1 : 10).

This type of wheel is extensively found in Uttar Pradesh. It is also present in Jullundur in the Punjab, and Dewas in Madhya Pradesh.

(b) Sometimes, cross-pieces of wood are wedged into the clay wheel in order to reinforce it. Two pieces of wood or bamboo sticks, 76.2 cm to 121.9 cm in length, are transfixed at right angles in the middle. The four arms, thus formed, are interwoven with

long pieces of creepers, thin bamboo splints, or coco-nut strings, making a perfect circular net which is afterwards thickly covered by a mixture of clay and goat's hair (Fig. 1 : 12). The arrangement of pivot and socket is made in the same way as already described.

This type of wheel has been found in all the selected districts of Rajasthan, Madhya Bharat districts of Madhya Pradesh and also in the districts of Bhatinda and Rohtak of the Punjab. The soil in these districts is generally sandy and loose, hence perhaps the need of wooden reinforcement.

Variations : Regional variations occur in the tempering materials. For example, while the potters of Uttar Pradesh, in general, use coco-nut fibre, human or goat's hair, the potters of Rajasthan and M. P. use donkey's dung and hair. It has also been found that in Rajasthan a baked clay disk or stone disk, 20.3 cm to 30.4 cm in diameter, is firmly fixed in the centre of the wheel on the upper surface of which the lump of clay is placed for throwing. This is done in order to protect the wheel from quick wear and tear.

Large variations also occur in the construction of the pivot. The pivot, when not buried in the ground, is usually fixed in a slab of stone, wood or clay so that the wheel can be easily carried from one place to another. This is done more for the convenience of the potter than for anything else. It may be pointed out here that a large number of potters have started using cement or solid stone wheel of this type. In places like Kutch in Gujarat not a single clay wheel was found, though the potters admitted that they were aware that clay wheels were once used in that area.

Type D : Socketed Spoked-wheel

Essential characters : This type of wheel has a socket like Type C and spokes as in Type A. It has got a wooden nave, a felly and connecting spokes. The stone socket is embedded at the centre in the undersurface of the nave, and the pivot is fixed separately on the ground.

Distribution : Its main concentration is in central part of India, but it is also found in the southern districts of Bihar in the East. It has been recorded from all the selected districts of Gujarat (excepting Kutch and Mehsana), Maharashtra, Madhya Pradesh (excepting Madhya Bharat districts), Kangra and Jullundur in the Punjab, Mahasu in Himachal Pradesh, Singbhum, Ranchi, Hazaribagh and Darbhanga in Bihar ; Nadia, Malda and West Dinajpur in West Bengal, Sambalpur, Dhenkanal, Keonjhar

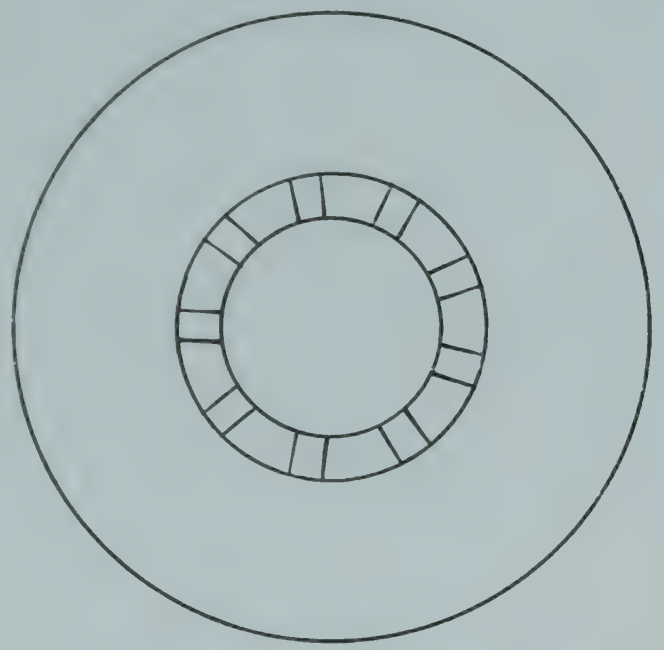


Fig 1:13 Socketed Spoked-wheel (with short spokes)

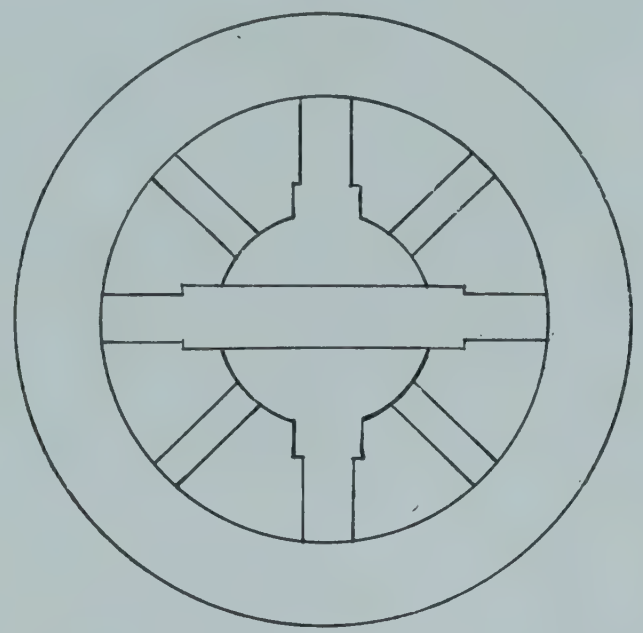


Fig 1:14 Socketed Spoked-wheel

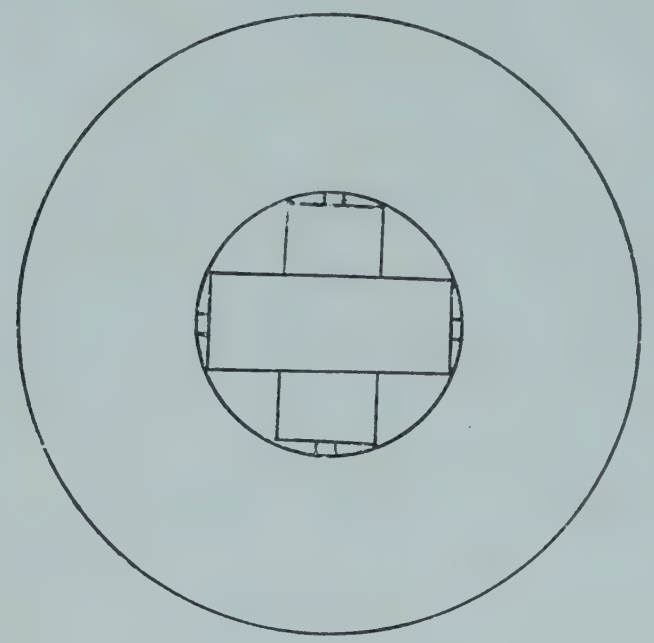


Fig 1:15 Socketed Spoked-wheel (with short and wide spokes)

and Mayurbhanj in Orissa, and also in Chikmagalur, Chitradurga, Bellary, Raichur, Bijapur, North Kanara and Dharwar in Mysore.

Details of construction : The wheel is constructed in the same fashion as in the case of Type A. In case it has four spokes, the two long spokes are carved and transfixed in such a way that a nave is formed at the junction. The four short spokes are fixed between the nave and felly. In case the number of spokes is more than four, the disk is prepared separately and the radiating spokes are attached to it through mortised grooves (Fig. 1 : 13). The felly is formed by thin bamboo splints bent into hoops and covered by clay mixed with human or animal hair as described in connection with Type A. The stone socket is embedded at the centre in the underpart of the disk or nave. The pivot is buried separately in the ground. The diameter of the wheel varies from 76.2 cm to 121.9 cm. The width of the felly ranges from 10 cm to 25.4 cm, the thickness of the felly is 6 cm to 10 cm. The spokes are between 10 cm and 20 cm and the diameter of the nave is about 20 cm to 30 cm.

Variations : In all the districts of Madhya Pradesh where this type of wheel has been found, wheels with four spokes are more numerous. Four-spoked wheels have also been found in the districts of Keonjhar, Mayurbhanj and Sambalpur in Orissa ; Kangra and Kulu Valley in the Punjab and Mahsu in Himachal Pradesh. In Maharashtra and the western districts of Mysore, the number of spokes in a wheel varies from 6 to 14. In some cases the nave is carved out in one of the long spokes and the other long spoke or spokes are fitted into grooves made on the upper part of the nave (Fig. 1 : 14). This arrangement is found specially in the socketed type of spoke wheels in Mayurbhanj, Keonjhar, Sambalpur in Orissa and Dharwar, Raichur, Bellary and Bijapur in Mysore. In Darbhanga (Bihar), a wheel with very short and wide spokes, 6 cm in length, has also been found (Fig. 1 : 15).

FOOT-WHEEL

The *double-wheel* or *foot-wheel,* popularly known as the *kick-wheel,* has two wooden disks supported by a long pivot whose tenon rests and revolves in a socket (Fig. 1 : 16) provided at the bottom of the pit in which the entire wheel is suitably accommodated (Fig. 1 : 17). The diameters of the lower and upper disks are 60.9 cm and 22.8 cm respectively. The pot is thrown on the upper disk. The wheel is turned by kicking the lower disk by means of the right foot. The foot-wheel has a very limited distribution in India. It is most commonly used in Amritsar District

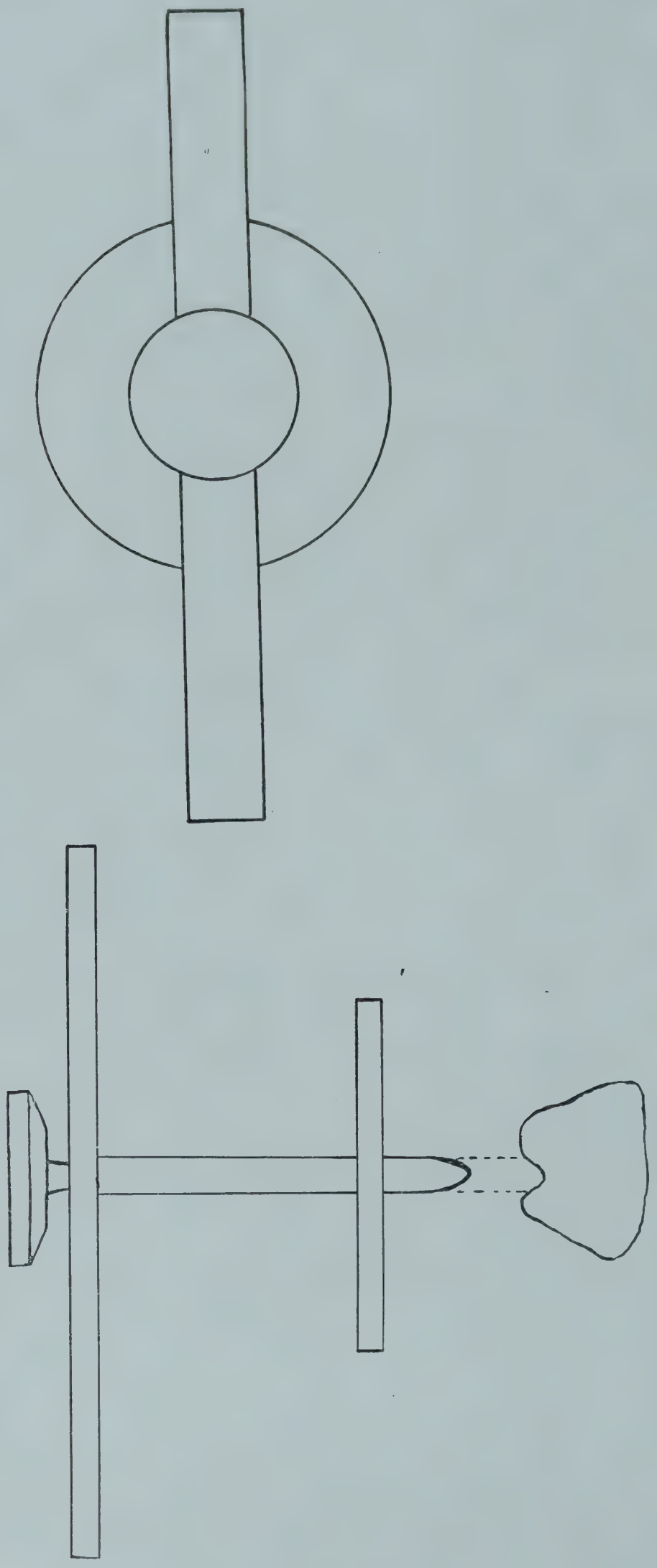


Fig 1:16 Structure of a Foot-wheel

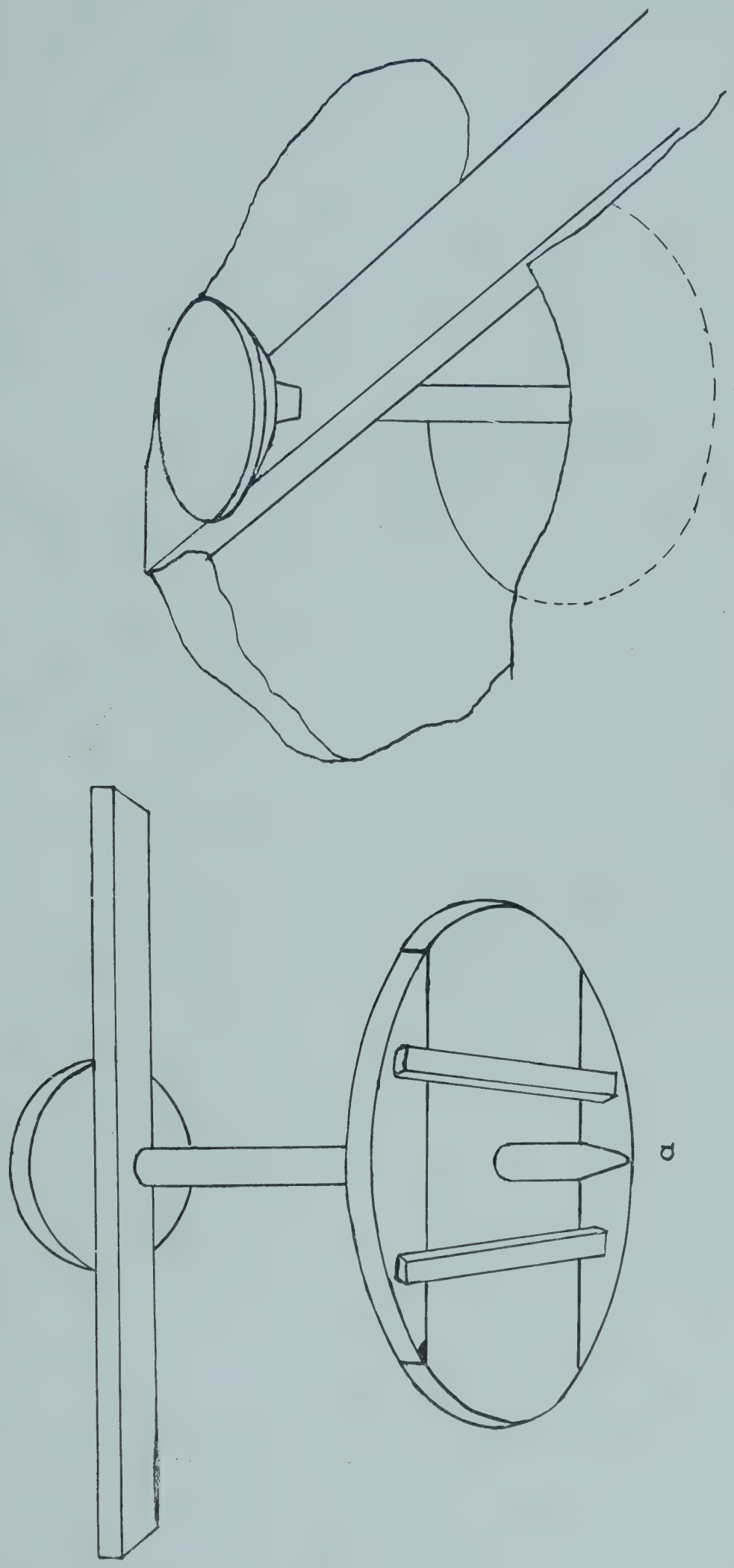


Fig 1:17(a) The tenon of a Foot-wheel Fig 1:17(b) A Foot-wheel accommodated in a pit

in the Punjab and also in Jammu in the State of Jammu and Kashmir. In these places it is popularly known as the *pathan* wheel.

Working on the Wheel

The single-wheel is spun by a stick that engages in a notch or depression in the felly. In some cases, as in the districts of Goalpara (Assam) and also in West Bengal, an extra piece of wood with two or three grooves in it is firmly tied with one of the spokes of the wheel (Fig. 1 : 18). It is in this groove that the turning

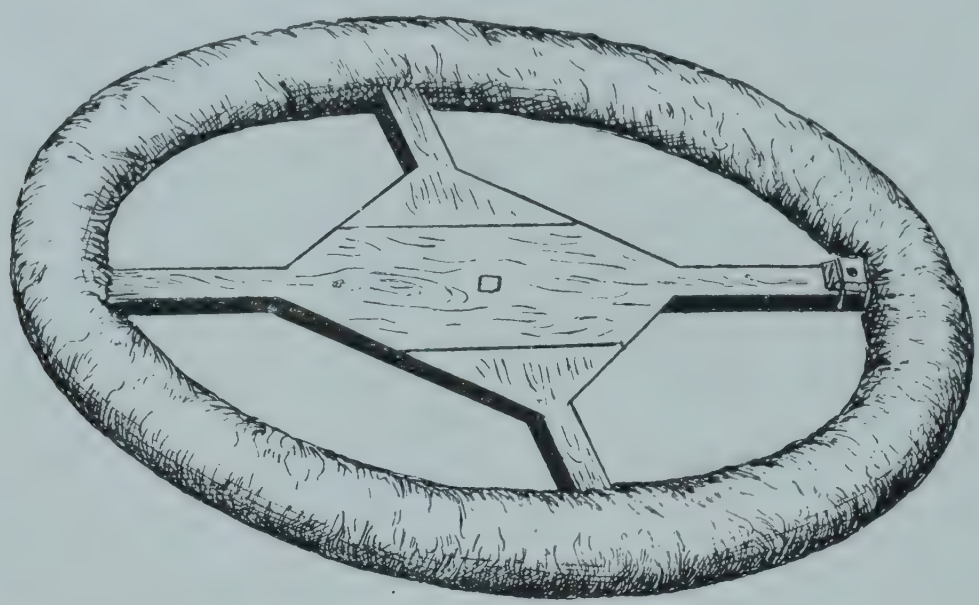


Fig 1 : 18 A groove for the turning stick, made in a wooden block and tied with the spoke

stick is inserted for rotating the wheel (Fig. 1 : 19). In Sidhi (Madhya Pradesh) and Mahsu (Himachal Pradesh), the potter does not insert the turning stick into any groove or notch but skilfully twirls the wheel by the stick guiding the pressure on the bare spokes of the wheel. In case of a spoked-wheel, sometime the thrower starts it with a jerk by turning the spokes with his bare hand for about 15 to 20 seconds and later uses the turning stick and twirls it anti-clockwise about a dozen times vigorously. But in Bicholin (Goa), North Kanara (Mysore), Kalahandi and Bolangir Districts in Orissa, and Sidhi and Bastar in Madhya Pradesh, the potters working on the spoked-wheel do not employ any kind of turning stick during operation, the wheel being turned only by the bare hands.

Fig 1 : 19 Twirling by a stick

The momentum of the wheel depends very much upon the

strength and practice of the thrower, and more so upon the weight of the wheel. The block-wheel (Northern type) is heavier than the spoked-wheel because of its solid construction. The stone wheel and the wheel made of cement are heavier than the clay wheel. The iron wheel, which has been found in only one village of Amritsar, is still heavier ; it was reported to us that the wheel was originally from a railway car. The weight of the wheel varies according to its size. The approximate weight of a spoked-wheel is about 37 kg to 74 kg and that of a solid block-wheel (Northern type) is about 56 kg to 93 kg. Once fully accelerated, the wheel maintains its momentum for about 8 to 10 minutes so as to complete a pot ; and if the momentum slows down before the completion of the pot, the thrower uses his stick again. Having obtained the required momentum a heavy wheel revolves for a longer time in comparision to the spoked-wheel. Presumably, it is because of this reason that the potters who work on the spoked-wheel have to twirl the wheel again and again before one pot can be completed. Potters working on heavier block-wheel do not have to renew the impetus constantly. However, it is estimated that a wheel, when spinning fast, makes 100 revolutions per minute and retains its momentum for five to seven minutes.

In all the cases of hand wheel, excepting the pivoted type of block-wheel, it is usually the thrower himself who spins the wheel ; but in Kutch, a thrower sometime employs an assistant for turning the wheel while he himself shapes the vessel. The pivoted block-wheel, as found in the districts of Madurai, Tiruchchirapalli, Ramnathpuram, Kanniyakumari and Nilgiris in Madras and Trivandrum in Kerala, is invariably operated by two persons. Usually, the wheel is turned by hand by a woman in a turn-table manner, and the man shapes the clay into pots while squatting on his haunches. The speed of this wheel is comparatively much less than the wheels spun with a turning stick. The pivoted block-wheel makes only 45 to 50 revolutions a minute. Among the Kota of the Nilgiris, the men turn the wheel, and the women shape the vessel.

The foot-wheel has an advantage that saves the potter from the laborious method of turning the wheel with hand or a turning stick. In a foot-wheel, both the hands of the potter are free for shaping the vessel, and whenever he requires fresh impetus to the momentum of the wheel, he can most comfortably do so by kicking the lower wheel without disturbing his work above. Moreover, in a foot-wheel a potter can always have smooth control over the speed of the wheel.

It is not known whether the structural difference between the

socketed and the pivoted disks brings any remarkable change in the speed of the two wheels, but it has been observed that the pivoted wheel, especially with a long pivot, is more often subject to considerable wobbling, and sometimes when it accidentally runs out of its socket, the thrower receives a deep wound in his leg. In Andhra Pradesh, such accidents are very common. In Warangal, we were told, a potter is easily recognized by the marks of wound on his shin. Besides this elongated pivot, another reason of wobbling appears to be the concave socket on which the tenon rests. The depth of the socket is usually not more than 1.5 cm. Therefore, the pivot often cannot remain true in the socket and slips in its seat.

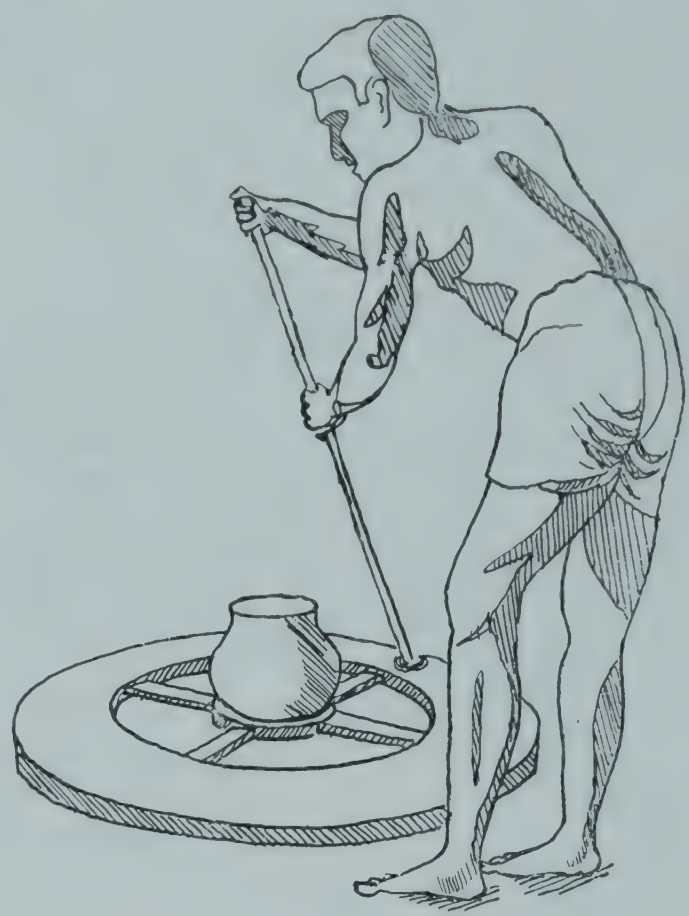


Fig 1 : 20 Twirling the wheel in a standing posture

The elongated pivot has a mechanical disadvantage which can be observed very clearly during throwing. The pivoted spoked-wheel of Type A may be referred to here. The potters who work on a wheel revolving at the level of 17.7 cm or above the ground, cannot be perfectly comfortable during throwing. He remains bent like a bow, constantly leaning on the wheel during work. He uses a long turning stick about 106.6 cm in length, and

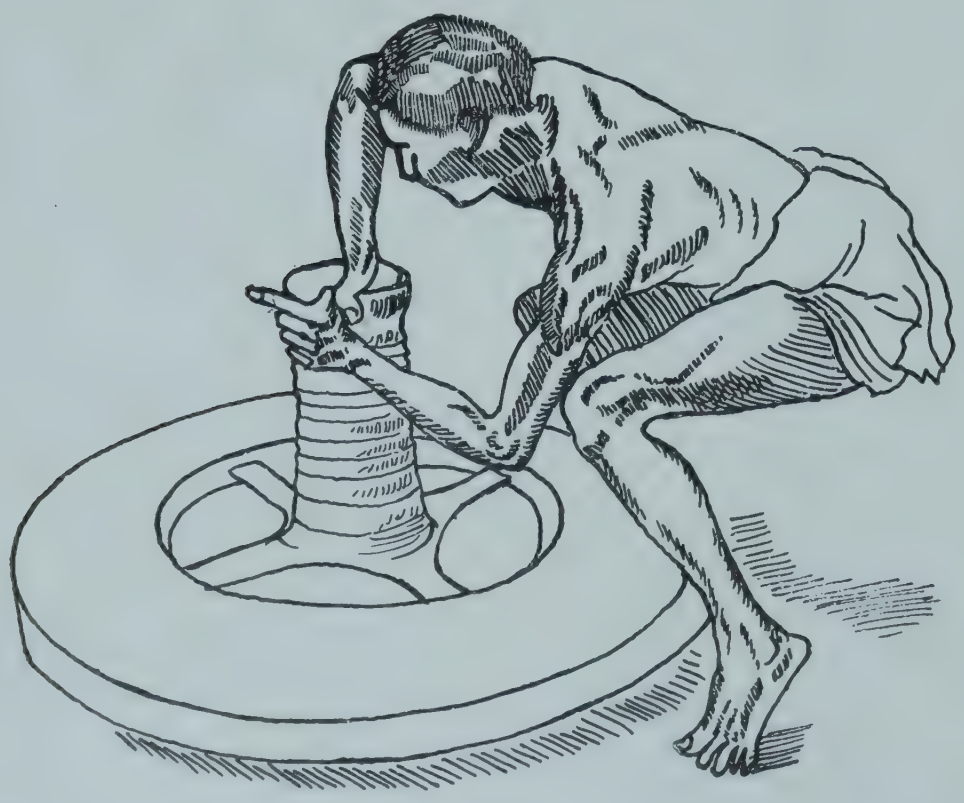


Fig 1 : 21 Throwing on the wheel in a bent posture

twirls the wheel while standing (Fig. 1 : 20). Almost all over south-eastern India, where the pivoted spoked-wheel is used, potters work on the wheel constantly in a bent posture (Fig. 1 : 21). In Central India, particularly in Maharashtra and Gujarat where the socketed spoked-wheel is used and the pivot is comparatively very small, though a potter uses a long stick, at times, and twirls the wheel standing, he shapes the vessel while sitting down upon

Fig 1: 22 Throwing on the wheel in a seating posture

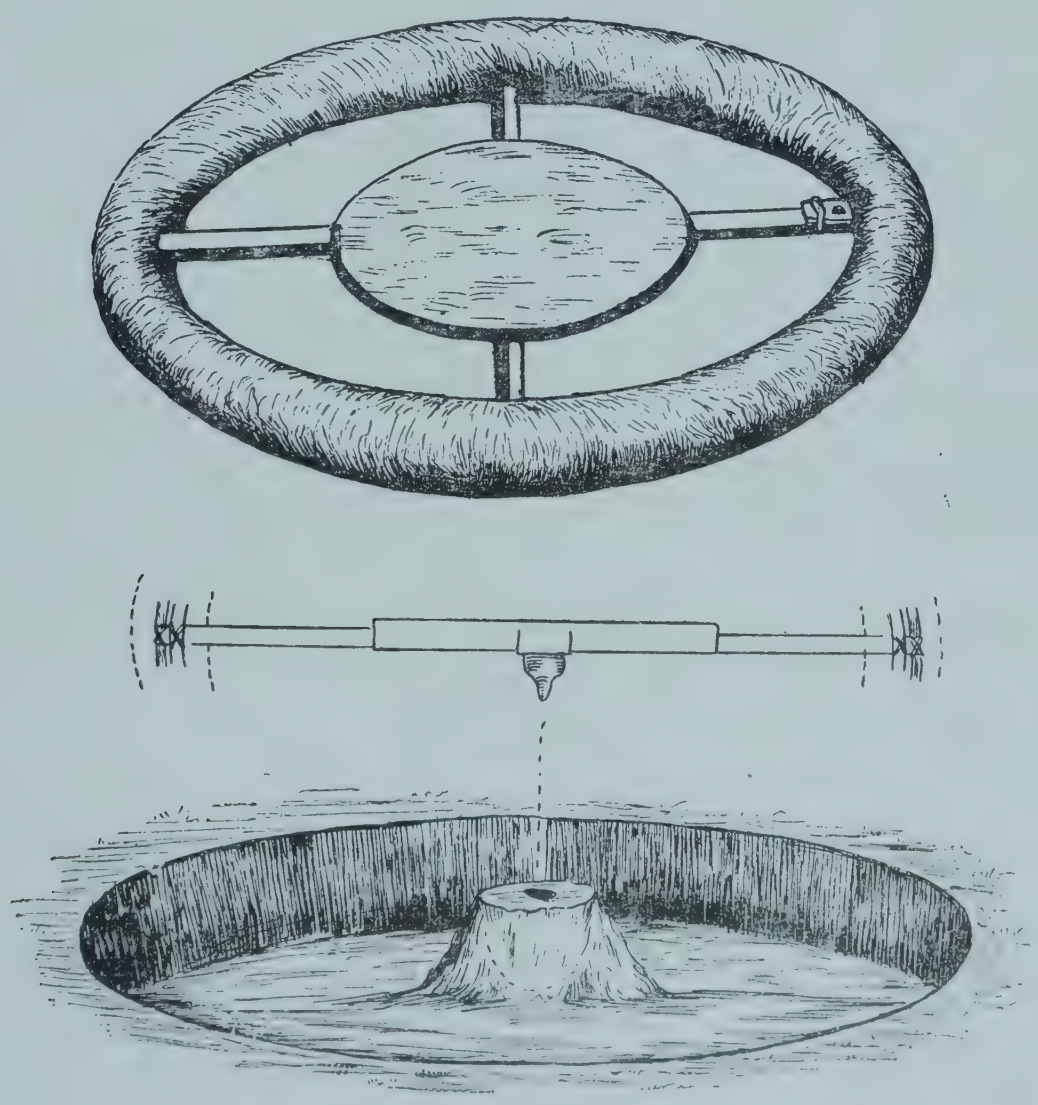


Fig 1 : 23 Accommodating a wheel in a hollowed pit

his toe. The potters of north-western India squat in a comfortable position during throwing, and they do not have to stand even for turning the wheel (Fig. 1 : 22). To remain in a desirable level with the wheel the potter sometime sits on a high wooden stool, or alternatively, the wheel is accommodated in a hollowed pit (Fig. 1 : 23) where it revolves parallel to the surface of the ground. The system of accommodating the wheel in a hollowed pit is widely prevalent over the north-western regions of India and also in West Bengal and Assam. When the wheel revolves in a pit, it naturally wobbles very little.

BEATING TOOLS

Next to the potter's wheel come the beating tools which are required in a subsequent process of pottery manufacture. After the pots have been thrown on the wheel the next stage comes of beating, enlarging and smoothening the pots. The pots are processed between a wooden beater and a clay or stone anvil. These are the most important tools that are used both for wheel-thrown pottery as well as for hand-made pottery. The method of operation will be discussed in due course; here only the form of the tools will be discussed.

Beater

It is a wooden tool made by carpenters. Among the Kota of Nilgiri District, the potters themselves make this tool with an iron chisel. Beaters of different size, shape and weight have been recorded from different parts of India. Functionally, there are three types of beaters, one is used for enlarging the vessel, another is for smoothening the surface of the vssel, and the third for making impression on the pot. In Ujjain (M. P.), the beater which is used for enlarging the pot is called *dol* and that which is employed for smoothening the surface of the pot is called *saūa*. Usually, the beater for enlarging the pot has a plain surface and that for smoothening has a depression on it. Every potter possesses two to three such beaters of different weights and sizes. Big and small sized beaters are required as the potter advances in the operation of beating the pot. Heavy- and light-weight beaters are also required for the same purpose. A heavy beater with plain surface is generally employed for enlarging the pot, while a light beater with a depression on the working side of it is used for smoothening the surface. In Mysore, Andhra Pradesh, Goa, northern parts of Kerala and Madras, and also in West Bengal, an engraved beater is used. Engraved beaters (Fig. 1 : 24) with linear incisions are used to render decorative impressions on earthenwares. The linear incisions are oblique and are in one direction. In some cases, the lines are incised cross-wise to render

parallelogramic impressions. These incisions are on the flat (working) sides of a beater as well as on its edges or narrow sides. The flat side of such a beater is used to render impression on the bottom or on the body of vessel, but its narrow side or edge is used to impart impression around the neck of vessel. Three types of decorations are usually done with the edge of the engraved beater, namely, oblique lines (Fig. 1 : 24, b), linear crosses (Fig. 1 : 24, a) and concentric dots (Fig. 1 : 24, c).

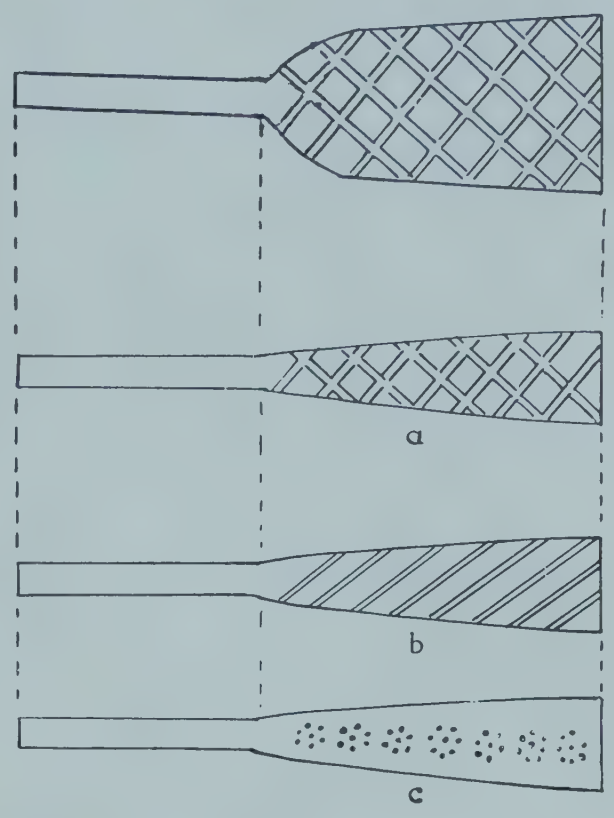


Fig 1 : 24 Engraved beaters

Beaters are generally made of strong but light wood like *Shorea robusta, seesum,* jack tree, acacia, etc.

The length of the beater varies from 17.7 cm to 33 cm. A beater has got two parts, namely, the handle or grip and the body. The length of the handle is about 12.5 cm. The thickness of the beater varies from 1 cm to 3 cm. A heavy beater weighs about 800 gms, and a light beater may be about 200 gms. The weight of the beater varies greatly according to its size and type of wood used.

Usually, a beater has got one or two working surfaces ; one side

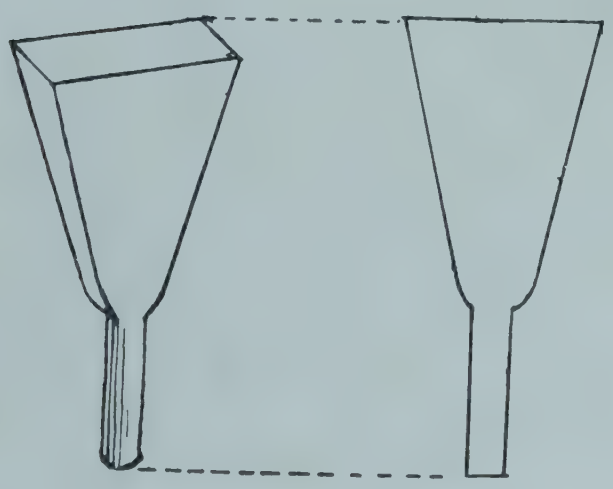


Fig 1 : 25 A beater

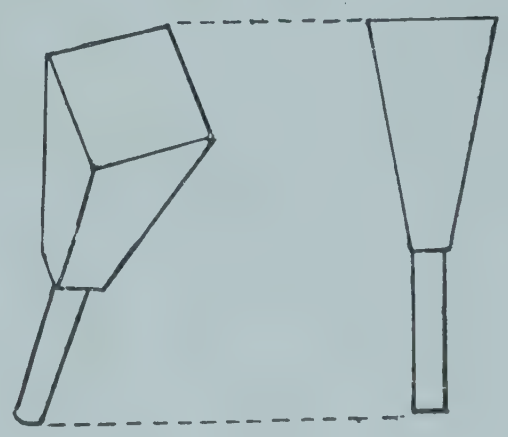


Fig 1 : 26 A beater

may be flat, and the opposite side may be provided with a depression. In this case, the beater is rectangular in cross-section (Fig. 1 : 25). However, among Telugu potters the beater of square

cross-section (Fig. 1 : 26) is very popular. Though such beaters provide four workable surfaces, only two opposite sides are used for beating.

There are altogether 16 different shapes of beaters recorded by us. They can be classified into three groups :

(1) Angular pattern (Fig. 1 : 27).
(2) Circular pattern (Fig. 1 : 28).
(3) Trowel pattern (Fig. 1 : 29).

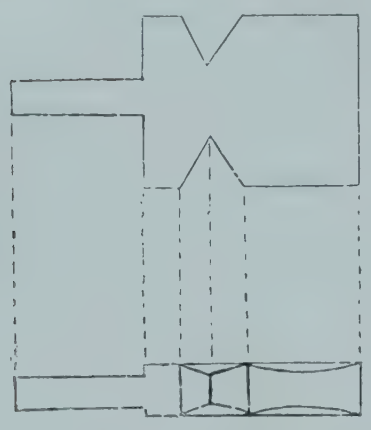


Fig 1 : 27
A beater
Angular pattern

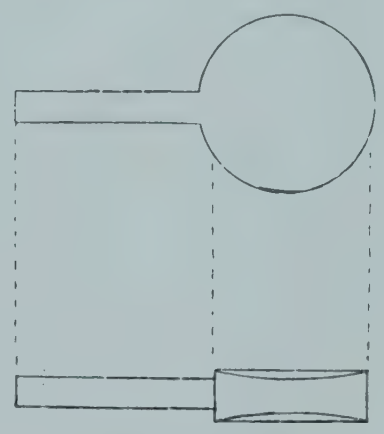


Fig 1 : 28
A beater
Circular pattern

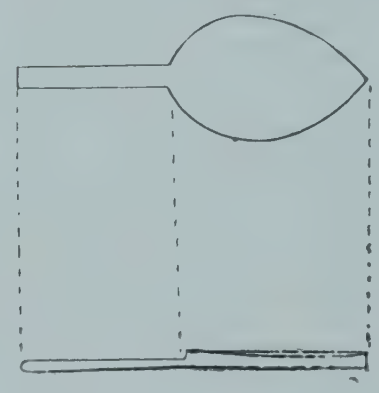


Fig 1 : 29
A beater
Trowel pattern

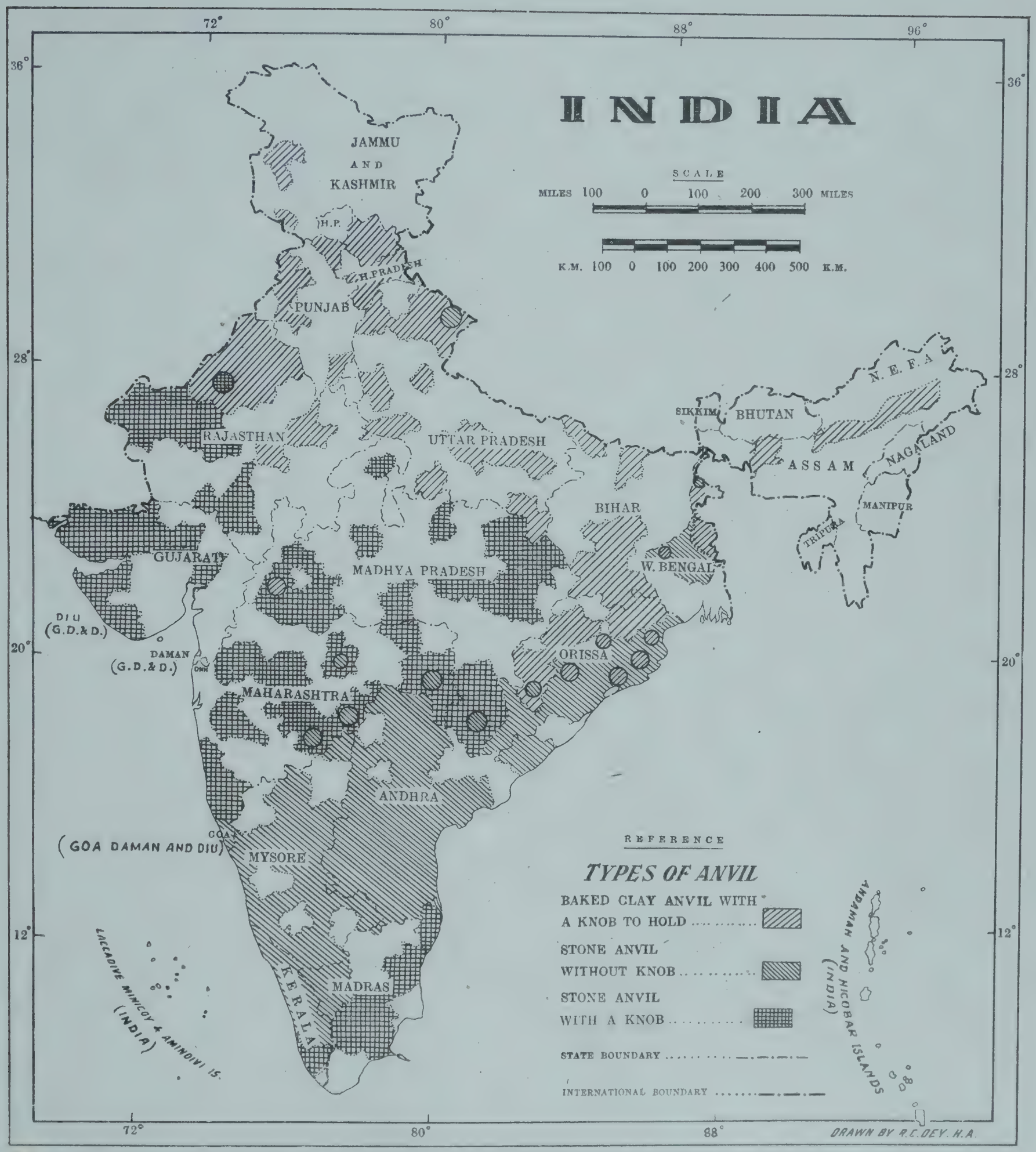
Though these different shapes are of no functional significance, they are interesting and noteworthy.

ANVIL

It is made of clay or stone, the former is made by potter himself, and the latter is made by a stone-cutter. The stone anvil is made of granite. Ordinary plastic clay is used for the clay anvil which is subsequently baked. In Dhar (M. P.), the clay used for making an anvil is tempered with powdered stone.

There are two distinct varieties of this anvil, one with a knob or a grip (Fig. 1 : 30) and the other without it (Fig. 1 : 31). The working surface of the anvil may be flat or convex. Both flat and convex-surfaced anvils are required for beating. The flat anvil is generally used at the time of enlarging the pot, while the anvil with a convex working surface is required for smoothening. The bottom of the pot is finally beaten between an anvil having a convex working surface and a beater with a depression.

Clay anvils are sometimes provided with a hole on the top of its knob (Fig. 1 : 32) so that the potter can insert his middle finger into this hole for holding the anvil steadily. In Darbhanga (Bihar), when the potter has to beat the bottom of a vessel with a narrow mouth, in which he cannot easily put his hand with an



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anvil, he inserts a long stick into the hole provided on the knob of the anvil. Whenever the bottom of any pot is to be beaten flat, a potter usually adopts this method, and the anvil is operated like a rammer.

Fig 1 : 30
An anvil with knob

Fig 1 : 31
An anvil without knob

Fig 1 : 32
An anvil with a hole on the top of its knob

The diameter of the working surface of the anvil varies from 5 cm to 12.7 cm.

In northern India, a clay anvil provided with a knob is largely used by potters. In southern India, we find stone anvils which are usually devoid of any knob or grip, excepting among the Vellála potters of South Arcot, Trichi, Madurai, Ramnad, Kanniyakumari in Madras and also in Trivāndrum and Alleppey in Kerala. In central India, though the material of the anvil is stone (Southern type), it is provided with a knob like northern variety. It may be mentioned here that gradually stone anvils are becoming popular in parts of Rajasthan where once baked clay anvils were in use. Baked clay anvils do not last longer and are breakable. The material of the anvil can be changed, but the system of holding the anvil in a particular way to which the potters are used, cannot be easily changed and, therefore, the original shape of the knob is retained. Distribution of the two types of anvils has been shown in a separate map.

Beating Base

The potters of northern, western, central and parts of eastern India use a base for beating the pot into the required shape and size.

In South India, no base is used for this purpose, and the pots are generally beaten either on the bare leg of the potter or on a goat's hide supported on the leg. Sometimes a straw roll, or a portion of a mat, or gunny bag, or blanket, is rolled to function as a pad which supports a large pot under beating. This pad is often used to raise the knees of the potter while he beats the pot on his stretched legs. One side of the mat, or gunny bag, or blanket, on which the potter sits during his work may be rolled to serve this purpose (Fig. 1 : 33).

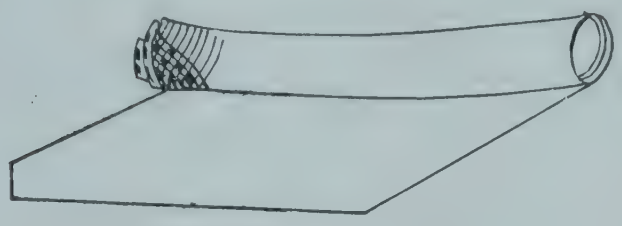


Fig 1 : 33 A mat base for beating

In other parts of the country, where a base is used, the purpose is to hold the pot steadily and accommodate its bottom while it

Fig 1 : 34 A baked clay base for beating

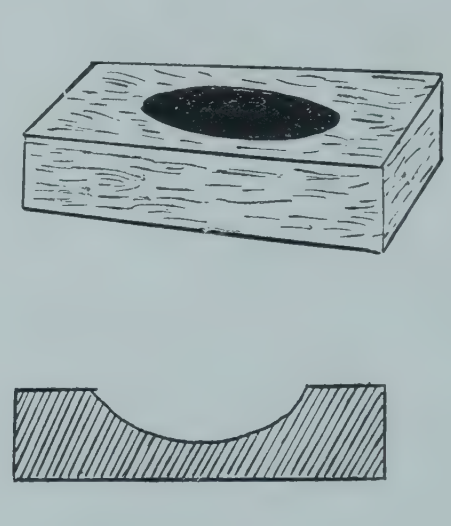


Fig 1 : 35 A wooden base for beating

is in the process of making. Different types of materials are used to construct the base. In northern India and also in parts of Rajasthan and eastern India, generally, a baked clay base is used. The clay base is shaped like a wide mouthed vessel (Fig. 1:34). It is made by the potter himself. Sometimes, a wooden base is also used. This base is made of a rectangular or circular block of wood (Fig. 1 : 35) in which a circular concave surface is carved out to contain the spherical base of a pot. It is made by a carpenter. The clay or wooden base provides a solid seat for the pot to rest while it is beaten.

The potters of central India and also parts of western India sometimes use a bamboo basket filled with soft grass and covered with a jute sack or piece of cloth as a base for beating the pot

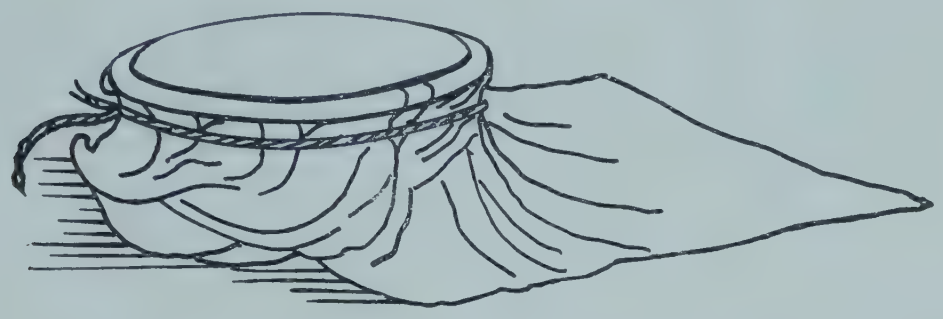


Fig 1 : 36 A basket base for beating

(Fig. 1 : 36). Obviously, such a base cannot provide a strong and solid seat for the bottom of the pot to be beaten vertically. A technological difference in the method of beating emerges out of this morphological difference of the base which will be explained in the chapter dealing with the technique of beating. This kind of a base provides only a resting place for the pot while it is being beaten. At times, when this base is made of one bamboo splint bent into a ring and fastened with a jute sack, it becomes so delicate that the potter puts it into a pit dug in the ground. In various parts of Maharashtra, a simple shallow concave surfaced pit is used as the base for a pot during beating. But in some parts of western Orissa, such a pit-base is lined with a piece of cloth or gunny bag, or a mattress woven out of date-palm leaves. The distribution of the use of various types of bases in connection with beating of pots has been plotted out on the map.

MISCELLANEOUS TOOLS

Digging Tool

The clay used in pottery manufacture is dug with an ordinary spade, a shovel or a crow-bar from the clay pit.

Carrying Receptacles

Pottery clay is transported from the clay deposits to the potter's house by means of panniers on donkey's back. If the distance is not much, it may be carried in a bamboo basket.

Wooden Mallet

A wooden mallet (Fig. 1:37) is used for pulverising the clods.

Fig 1 : 37 A wooden mallet

Sieve

Tin or bamboo sieve (Fig. 1:38) is used for sifting the clay.

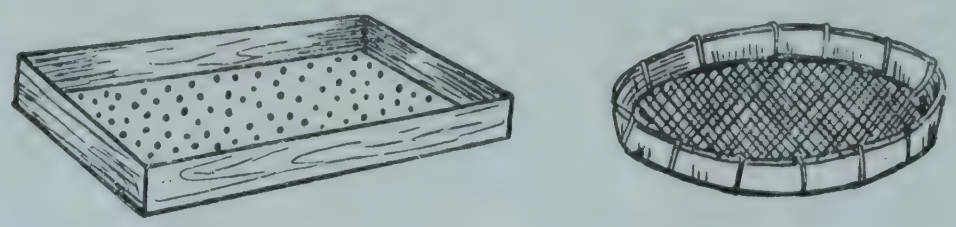


Fig 1 : 38 Tin and bamboo sieve

Mixing Surfaces

Final kneading of the clay is done upon a gunny bag, stone slab, baked clay disk, or a smooth plank laid upon the floor. Mixing of clay and sand is also done on this surface.

Slicer

While preparing clay, a potter uses iron blades. (Fig. 1 : 39),

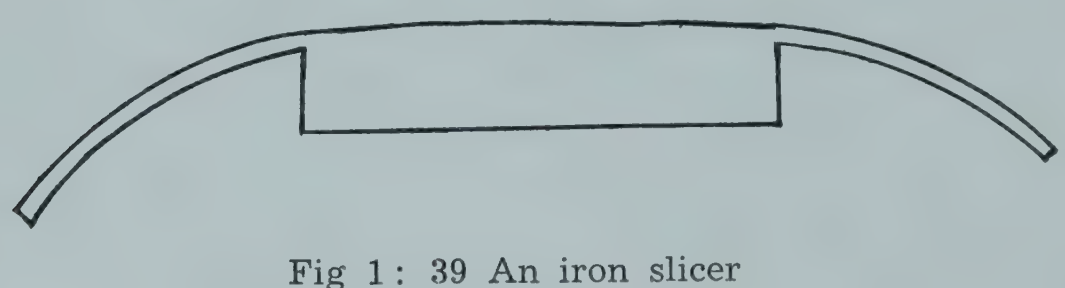


Fig 1 : 39 An iron slicer

sickles, or wires for slicing the clay lumps so as to chalk out the unwanted particles from it.

Turning Stick

A bamboo or wooden stick of 90 to 125 cm in length is used for turning the wheel. One end of this stick is slightly pointed so that it can fit in to the groove provided for it in the upper surface of the wheel.

Water Container

While the potter is at work on the wheel, he keeps by his side a pot filled with water. Water is frequently used for moistening the parts of the vessel under shapping and also to clean his hands at intervals.

Shaper

Various tools are used at the time of shaping the vessel on the wheel. A bamboo rind, or a piece of wood or a bull's polished

horn tip (Fig. 1:40) is used for thinning the wall of the pot as well as for bringing uniformity in shape.

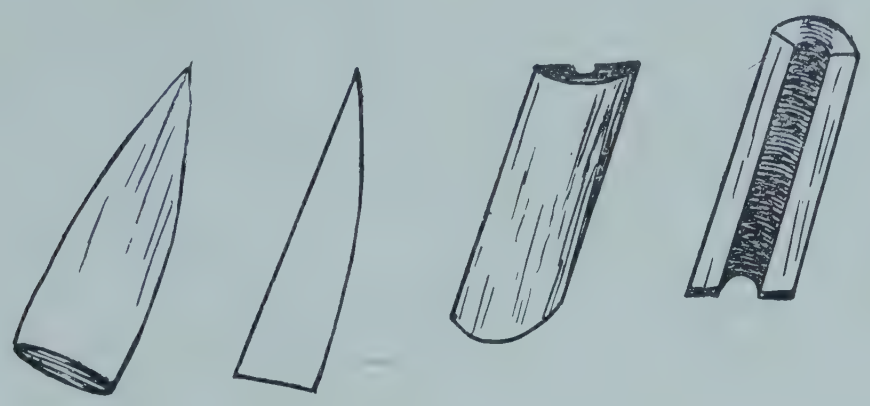


Fig 1 : 40 Shapers

Mops

The mop consisting of rag folded into the size of 2 cm is applied for smoothening the brim and the surface of the vessel while it is on the wheel.

Wiping Rags

A piece of cloth is used for wiping the surface of the vessel after scraping or polishing.

Shaving Tools

Wooden or iron shaving tools (Fig. 1 : 41) are used in throwing

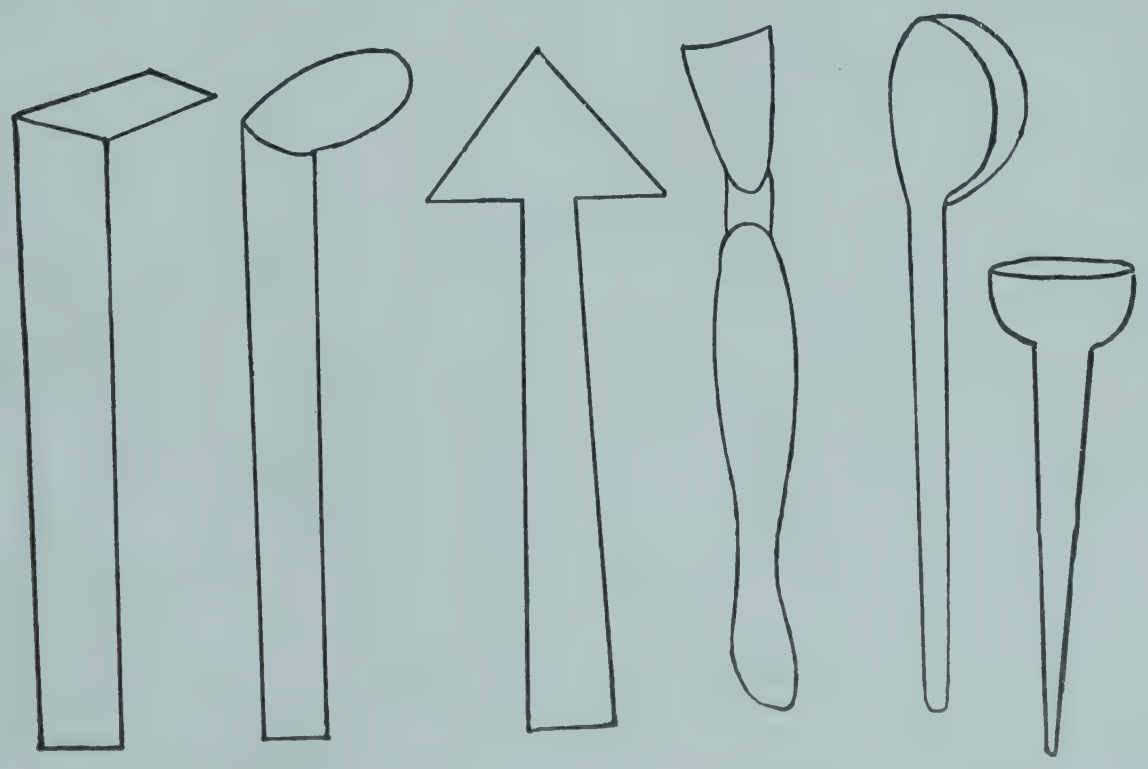


Fig 1 : 41 Shaving tools

very narrow necked shapes. They are usually bent at the ends and filed into various sharp curves and angles as may be required

for shaving. Shaving tools are employed especially for making *chilam* (smoking pipes).

Cutter

After a pot is shaped on the wheel, it is detached by means of a cutter. A thin bamboo split of about 10 to 12 cm in length with a very pointed end is used as a cutter. Similarly, iron needle or

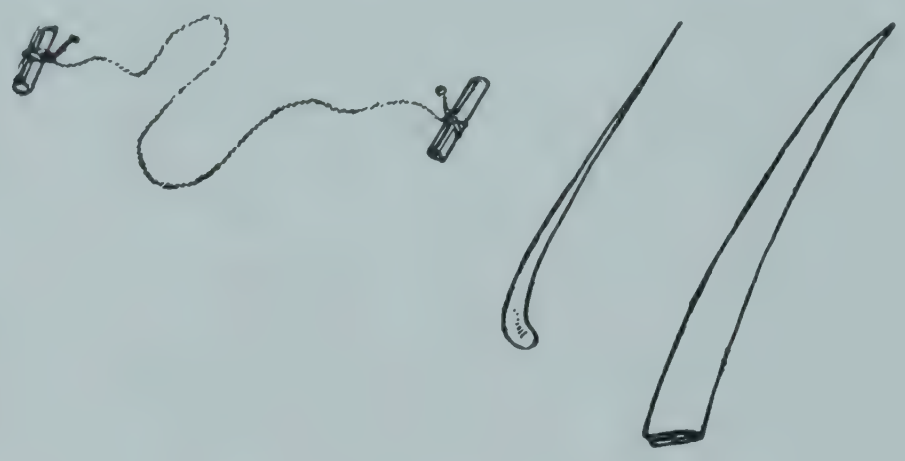


Fig 1 : 42 Cutters

a piece of thread whose two ends are tied to small sticks serving as handles may be used for this purpose (Fig. 1 : 42).

Scrapers

The function of this tool is to scrap off the unwanted clay from

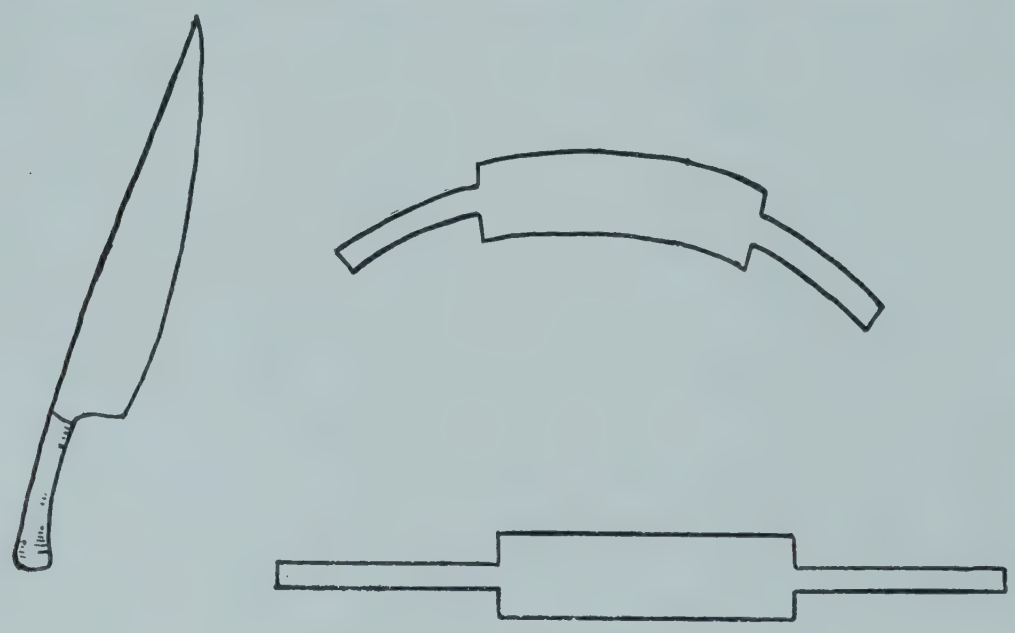


Fig 1 : 43 Wooden and bamboo scrapers

the body of a half-dried or leather-hard pot, or to smoothen certain

Fig 1 : 44 Iron Scraper

types of earthenwares by scraping. Scrapers are made out of wood, bamboo (Fig. 1 : 43), iron (Fig. 1 : 44), and snail or oyster shells (Fig. 1 : 45).

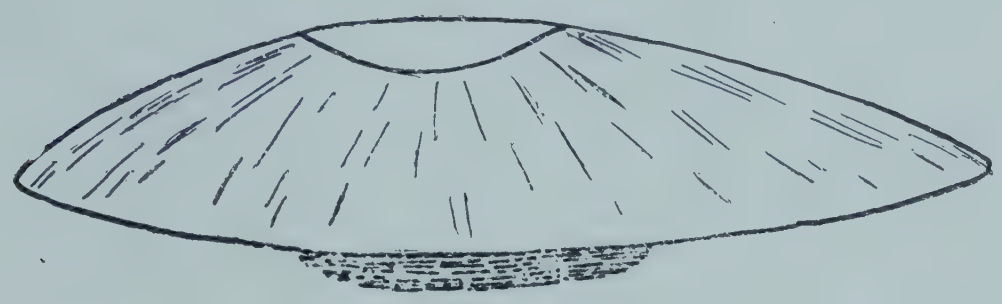


Fig 1 : 45 An oyster shell for scraping

ENGRAVERS

Engraving tools are usually made up of bamboo, wood, horn, and

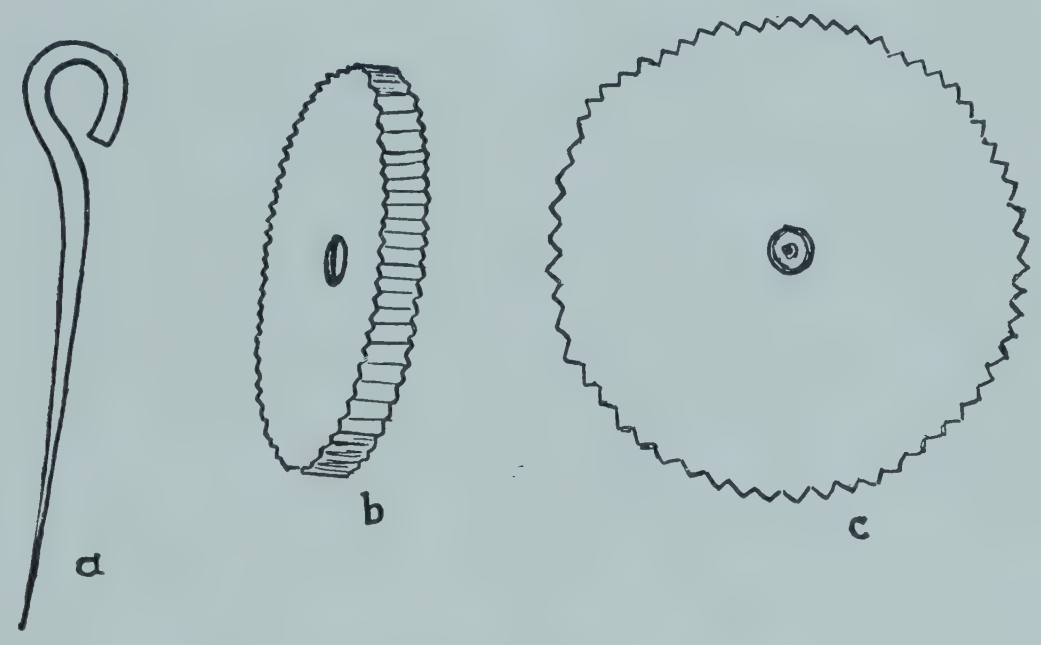


Fig 1 : 46 Engravers

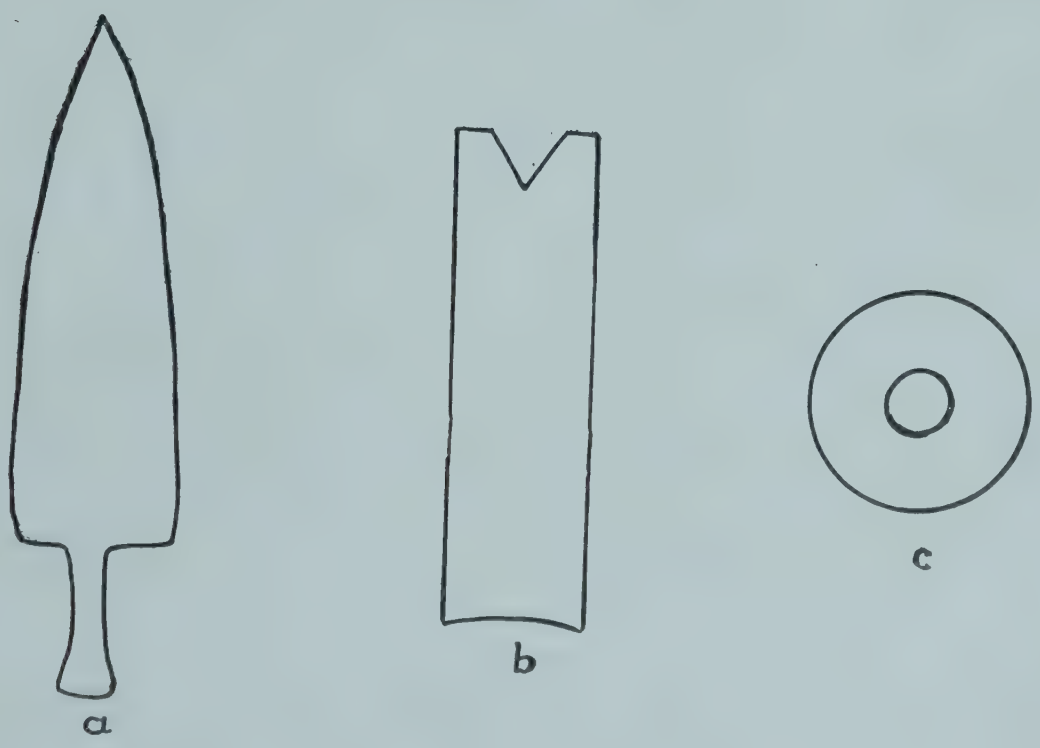


Fig 1 : 47 Engravers

iron materials. They are used for incising various designs on the pot. Different types of engravers are used by the potters. A needle (Fig. 1 : 46a) or double edged knife-like tool with a tapering end (Fig. 1 : 47a) is used for engraving. Sometimes an incised roller (Fig. 1 : 48) or a metallic cogged wheel (Fig. 1 : 46

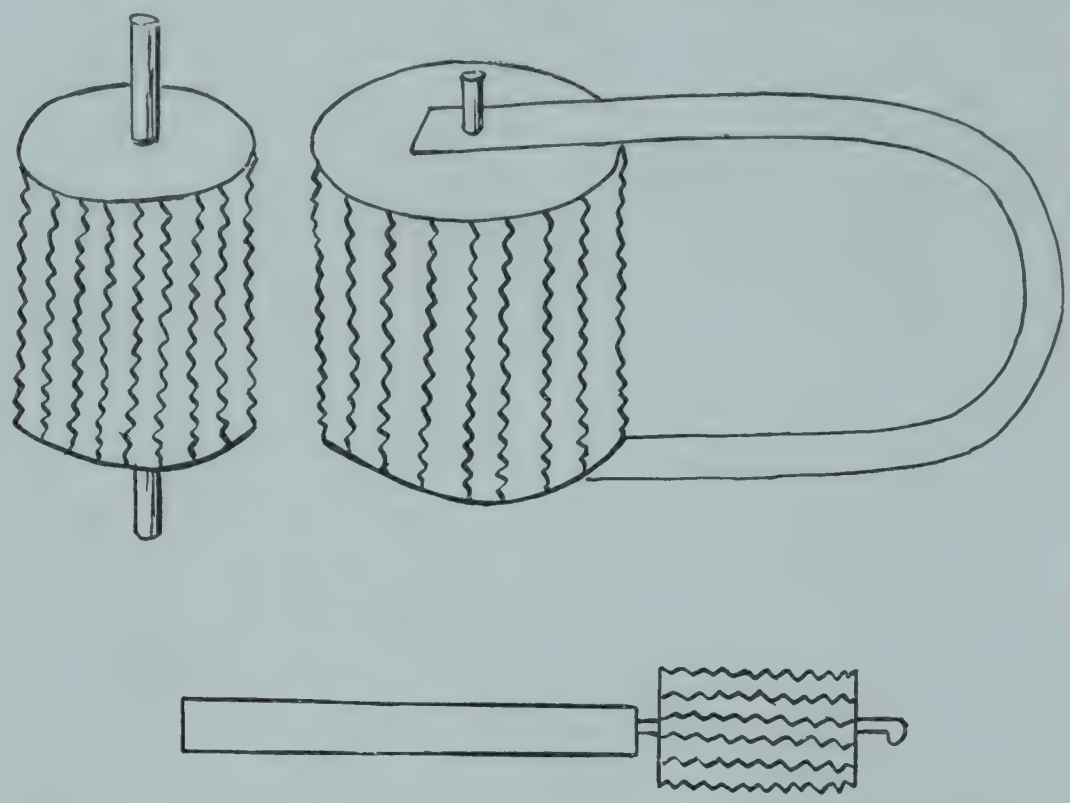


Fig 1 : 48 Incised rollers

b, c) with a central hole is used for rendering engraved impressions on the pots. Bamboo combs (Fig. 1 : 49) are also used in making incised patterns.

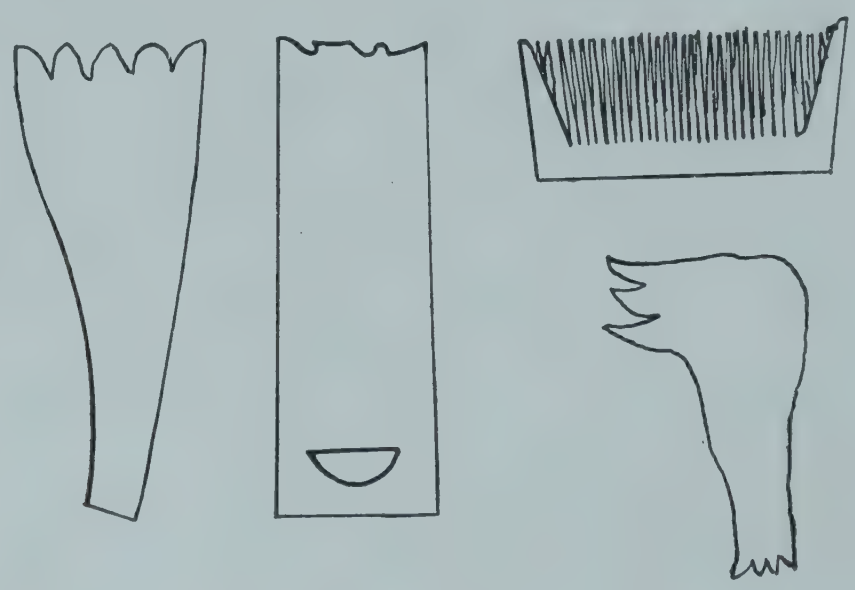


Fig 1 : 49 Combs

Seals

Various types of seals are used to render impressions on earthen vessels when they are half-dried or leather-hard. Seals are made of aluminium, brass, iron, wood, horn, baked clay, or of wild

fruits. The seals contain naturalistic or geometrical designs (Figs 1 : 50, 1 : 51).

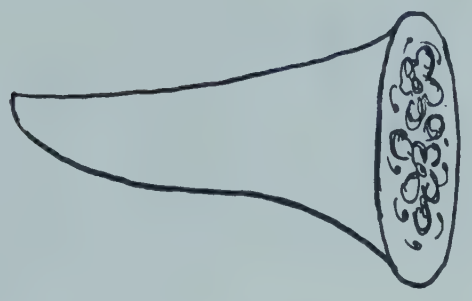


Fig 1 :50 Seal

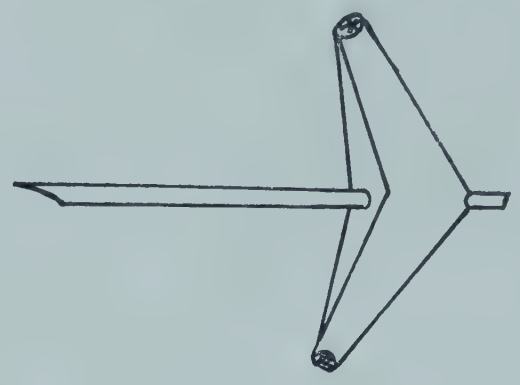


Fig 1 :51 Seal

Polishing Tools

Stone pebbles, glass beads, wild fruit seeds, snail shells and

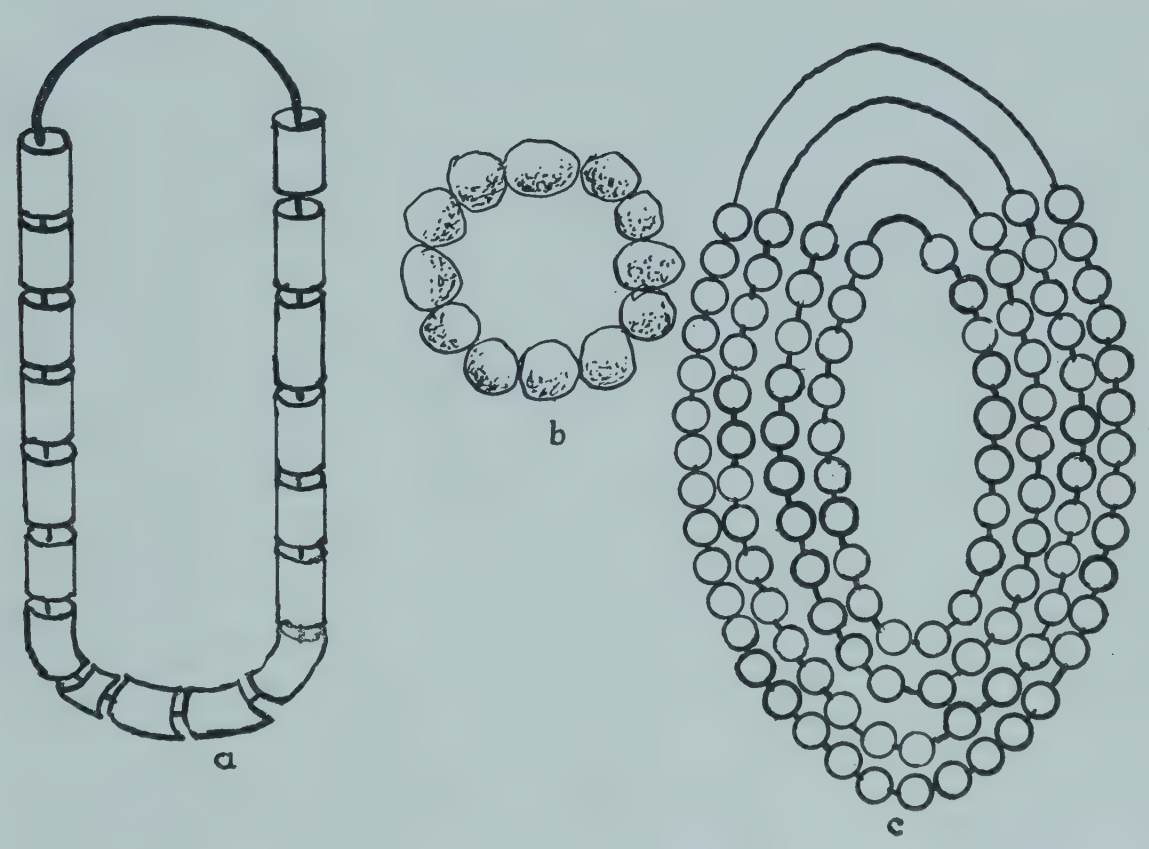


Fig 1 : 52 Polishing beads

baked clay tools are used for polishing earthen vessels. About a dozen stone pebbles are strung together (Fig. 1 : 52b) to be used as polishing tool. A single pebble may also be used. Glass beads are also strung into a garland (Fig. 1 : 52a). They are supplied to the potters by *churihars* who manufacture glass bangles. For stone pebbles the potters themselves procure it and select water-worn pebbles of fine grains. The stones of some wild fruits are also strung together like a rosary, and when the seeds are small,

a bunch of such rosary is used for polishing (Fig. 1 : 52c). A single stone may also be used when it is big in size. Snails' shells

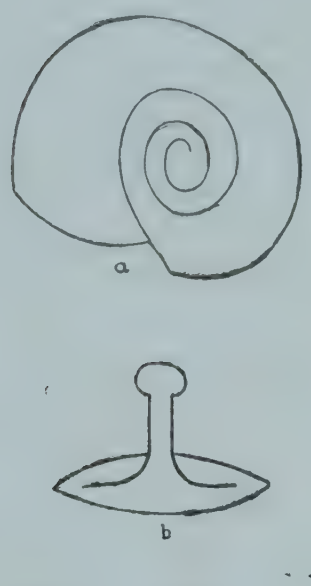


Fig 1 : 53
Polishing tools

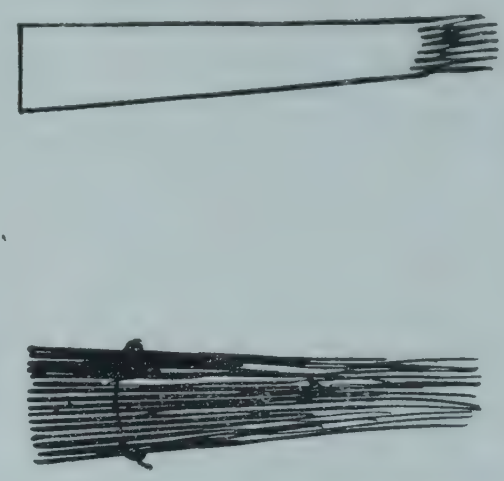


Fig 1 : 54 Paint brushes

are also used as a polishing tool in parts of Orissa (Fig. 1 : 53a). Sometimes a semi-lunate baked clay tool (Fig. 1 : 53b) is used for polishing. This is made of very fine clay.

Paint Brushes

For painting the pot different types of paint brushes are used. The brush may be made of hairs from donkey or horse's tail, bamboo bristles, or a piece of cloth rolled into a thin stick shape (Fig. 1 : 54).

Moulds

Different types of moulds are used for shaping certain types of vessels and terracotta figures. The moulds are made of clay. For preparing large vessels sometimes an earthen mound, shaped like a hemisphere is raised on the ground. When this mound is

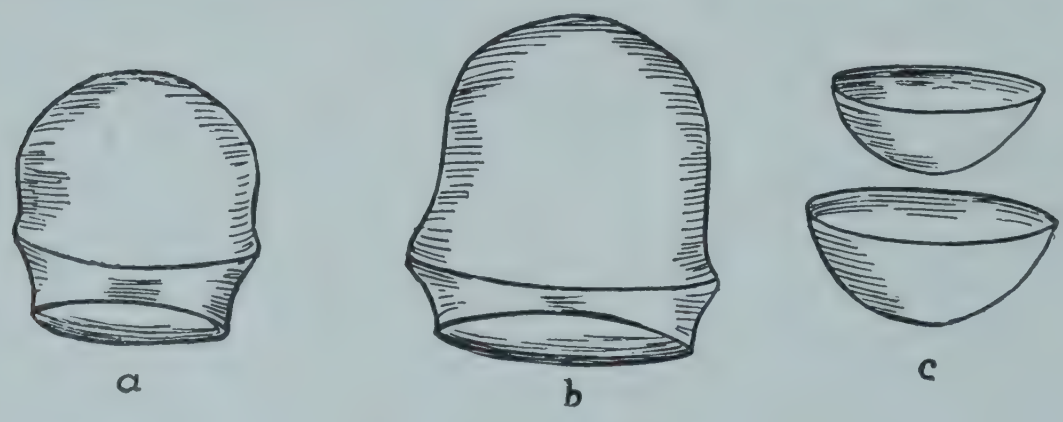


Fig 1 : 55 Moulds

completely dried up, pots are moulded over it. A small baked clay mound (Figs. 1 : 55 a, b) about 20 cm in height is also used as a mould. A couple of saucer-shaped baked clay pots is used

as a mould. The two mould-pots (Figs. 1 : 55c) are of different dimensions—one slightly bigger than the other, so that the clay can be pressed in between the walls of the two pots. For moulding ornamental *surahis* (long necked water jars) a potter prepares mould-pans on the wheel. When one of them is half-dried, designs are stamped with seals on it or incised by a needle. A pair of mould-pan is required for making a surahi. The piece of mould pan which moulds the upper part of the surahi is cut with a circular hole at its centre. At the time of moulding, this hole allows a gap for the attachment of the neck. The upper mould-pan (Fig. 1 : 56) contains ornamental seals. The lower mould-pan is devoid of any ornamentation.

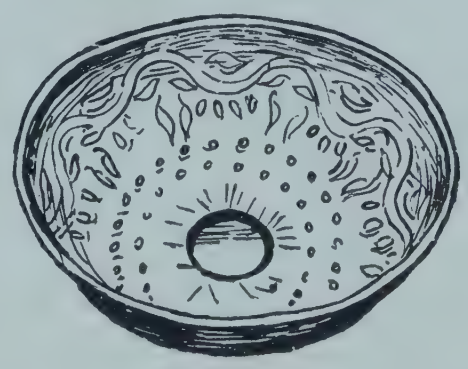


Fig 1 : 56 Ornamental mould pan

Moulds are used for preparing toys and terracotta figures. First of all, a model is prepared and out of this model moulds are prepared by well-levigated clay. The mould may be prepared in more than one section according to requirement. For instance, when a potter has to make a mould for a human figure in sitting posture, he prepares his mould in parts ; for head, body, hand and foot separate moulding sections are prepared. Moulds are well baked. Recently, moulds made of plaster of paris have been introduced.

Moulding Disk

A wooden disk about 25 cm in diameter and 10 cm thick is fitted with a nipple-shaped pivot at the centre in the undersurface of the disk. The pivot of this disk fits into a groove provided in a circular wooden slab. The mould disk is slowly rotated by hand or sometimes by the toe of the worker.

Accessories in Firing

Clay props for supporting the vessels on the ground layer of the kiln, and wooden pokers to remove the hot vessels after firing are required by the potters.

TECHNIQUES: WHEEL-THROWN POTTERY

MATERIALS

Clay, temper and colour are the three essential raw materials that are required for pottery manufacture. These materials usually do not require a very heavy capital investment, as they are obtained almost free and are locally available. The knowledge of testing and selection of the materials is of very great importance.

Clay

Upon the quality of the clay depend the durability and finishing of the vessels. Therefore, the knowledge of selecting suitable clay for pottery manufacture is essential. This knowledge is acquired by physical testing of the clay or by the help of an experienced old potter who can recognize the clay by its texture and colour. In the Deccan plateau, an old potter is often consulted for this purpose. The potters have their own indigenous method of testing the clay. A little clay soaked in water is rubbed against a piece of smooth wood, or between the tip of the thumb and the middle finger. If the clay appears to be glossy or sticky it is considered suitable. Sometimes an experiment is made with the clay. A pot or two is made out of the clay procured and put in the kiln. When the pot is taken out of the kiln without any crack on it, the clay is considered suitable for pottery.

The potters all over India classify different varieties of clay according to texture, colour, and composition. In Kashmir, the clay suitable for pottery is called *kral mechi* (potter's clay). In North India, the clay is sometimes attributed almost human qualities. Lean clays (*pātāli miṭṭi*) and fat clays (*moti miṭṭi*), fine clays (*bārik miṭṭi*) and coarse clays (*rukhāri miṭṭi*) are distinguished by the potters. In various parts of India, clay is named after the ingredients it contains. Sandy clay is named *bunda* in Rajasthan, *retili* in the Punjab and Uttar Pradesh, *darri* in Madhya Pradesh, *bāluāhi* in Bihar, *bāli* in West Bengal and Orissa, *māṇal in* Madras and Mysore, *ichnigāmannu* in Kerala, *atar* in Gujarat and *māsi* in Andhra Pradesh. Marls (clay which contains considerable proportion of lime) are named as *chunā māṭi* in North India, *velā māṭṭi or velāmannu* in South India and *mala maṭi* in Maharashtra. Hard clay is known as *der mechi* in Kashmir, *matālo māṭi* in Orissa, *ānṭu mānnu* in Andhra Pradesh and Mysore, *kārpu mānnu* in Madras, *ottal mānnu* in Kerala and *ror maṭi* in North India. Soft clay is *narm māṭi*. Clays containing small

pebbles or gravels are called *sakri* in Gujarat. Clayey soil is called *garo* in Rajasthan and Gujarat, *chikāni* in various parts of North India, and *jigil mānu* in Mysore. Alluvial clay is called *pānnā* in Rajasthan, *poietā* or *gar* in Maharashtra, *kanp* in Gujarat, and *jalodh* in North India. The clay is named according to its colour. Red clay is called *laāl māṭi* in North India, *nāl māṭi* in Orissa, *ermāṭi* in Andhra Pradesh, *sim māṇnu* in Madras, *cemānnu* in Mysore and Kerala. Dark red clay is called *saie rāti* in Kutch. White clay is *dholi* in Rajasthan, *velā mannu* usually in South India and *dudhiā* in North India. Black clay is called *kalārā* or *kālo* in Rajasthan and Gujarat, *kali* in Maharashtra, *pakhaba* in Bihar, *chitaki* in Madhya Pradesh, *kala* in Orissa, and *karpumāṭi* or *mānnu* in South India. Yellow clay is called *karaili* in Bihar, and *pili* or *perā* in various parts of North India. In Madhya Pradesh, *khasua miṭṭi* is the name for brown clay. Saline clay is called *khāri māti* in Orissa and khāro in Gujarat.

From the above description it becomes clear that the potters have a fairly good knowledge of the components of clay. A good potter is he who recognizes the quality of different varieties of clay.

The clay can be procured either from river or tank bed or from a fallow land. The surface clay is usually not used and considered unsuitable. Whenever a suitable clay deposit is discovered, potters continue to dig the clay from the same pit for a long time. The clay deposit is excavated first vertically for about 2 to 3 meters and then the potter goes on exploring the clay in horizontal level for about 3 to 4 meters in length without disturbing the upper surface of the deposit. Such digging forms a cave. Sometimes this cave collapses while the potter is working inside. Several cases have been reported from North India where such accidents have taken place and the potters have been buried alive.

The clay is brought home in a net-bag or gunny sacks loaded on the donkey's back. Horses, buffaloes or oxen may also be used as pack-animals for this purpose. If the distance of the clay deposit is not very great, the clay may be carried in a basket on the head or shoulder. A bullock cart is often employed for carrying large quantities of clay at a time. It may also be carried on slings attached to either end of a carrying-pole.

The clay is gathered in large quantities during summer, as the clay beds are then dry and as they will be water-logged soon with

the setting on of the monsoon. The gathered clay is properly stored. It is piled on an open verandah or in one corner of a room. When heaped outside under the open sky, the clay is besmeared with a coating of thick paste so that rain water may not permeate into it or else the quality of the clay will deteriorate.

Some of the potters of Rajasthan and Gujarat do not store the clay under a roof. They believe that the quality of the clay is improved by weathering and therefore the clay is exposed to sun, wind, and rain.

Temper

As the potter has to depend upon the geological resources available in his own locality, he often does not find the quality of clay best for pottery. Therefore, in order to improve the clay, certain tempering materials are used. Ash, husks, cattle-dung, saw-dust and sand are some of the tempering materials used by potters.

Colour

Vegetable colours as well as a large variety of ochres are used by potters for painting. Chemicals and paint barnish have become popular, particularly among urban potters, for post-firing painting. Soot, charcoal and gum are also used for preparing colour. Among vegetable colours turmeric (*curcuma longa*), rice and various types of leaves and grasses are used. As the vegetable colours die away in firing, various types of red, black, yellow and pink ochres and haematite and micaceous stones are used for painting the pots before firing.

PREPARATION OF CLAYS

After the clay has been brought home from the field, the task of the potter is to prepare it. An old potter from Rajasthan said that the greatest skill of the potter lies in his ability of preparing clay suitably. The methods of preparation differ largely from region to region, according to the nature of the locally available clays. But there are certain standardized processes which are adopted by potters all over the country. These are mainly in relation to cleaning, mixing, and kneading.

Cleaning

Cleaning may be done either near the clay beds or at home. Usually, it is done at home. The clay is first dried in the sun

until it becomes fully desiccated and then spread out in an open and clean courtyard. Larger impurities are picked out with the

Fig 2 : 1 Pulverizing the clay

hand, and the brittle clay clods are pulverized by means of a wooden mallet (Figs. 2 : 1, 2 : 2, 2 : 3). This clay is then sifted through a bamboo or iron sieve for removing pebbles, fine

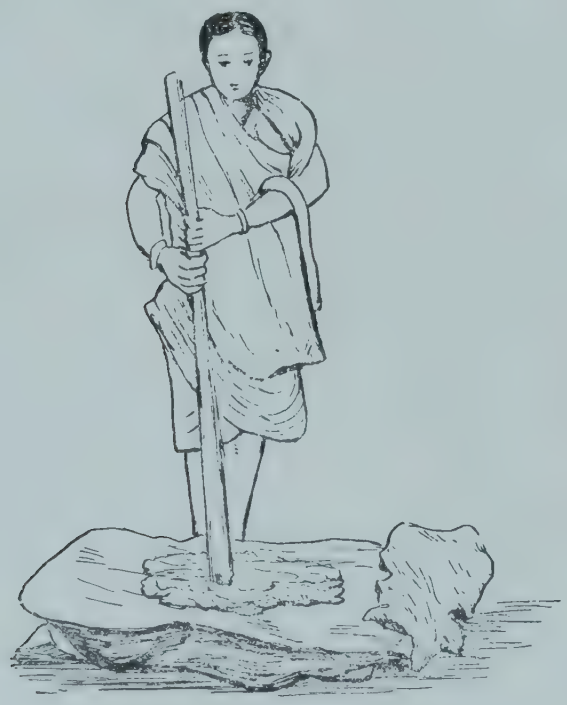


Fig 2 : 3 Pulverizing the clay

Fig 2 : 4 Pulverizing the clay

gravels, roots, and other materials. The pulverized clay is moistened with water, and the entire mass is ready for the subsequent processes of mixing and kneading.

Another method of cleansing is adopted when the clay contains large amounts of impurities. After the clay has been thoroughly dried and pulverized, the potter brings it into a pit and starts churning with water. The prepared slurry is sifted by means of a bamboo or iron sieve (Fig. 2 : 4). The clean clay is allowed to

Fig 2 : 4 Sifting

Fig 2 : 5 Draining off the water from the clay pit

settle at the bottom of the pit. After the water has been finally drained off (Fig. 2 : 5), the clay is taken out and dried in the sun to the consistency at which it may be used subsequently for mixing and kneading. There is a third method of cleaning clay. When clay is dug out in large clods and the clods are wet, the potter slices these clods with a sickle in order to detect and eliminate unwanted particles (Fig. 2 : 6).

Fig 2 : 6 Slicing the clay to eliminate unwanted particles

Some potters of Rajasthan and Kutch are of opinion that the quality of the clay can be highly improved by allowing it to rot for a long time. The clay is allowed to rot for about 8 to 10 days when it starts stinking; then it is thoroughly churned and sifted. The clay paste is slowly dried and vigorously kneaded by hand and foot. By souring and kneading the clay gains plasticity.

Mixing

When we look into the soil map of India, we find different varieties of clays occupying different regions of India. All the clays are not equally suitable for pottery. Excepting some alluvial clay, there is hardly any other type of clay which can straightway be used for pottery. We have seen earlier that the potters

classify different types of clays according to their texture, colour and composition. By experience potters gain a fairly good knowledge of the chemical reactions of some of the clays which they use in their craft. Therefore, sometimes, whenever possible, more than one variety of clay are mixed together to the required proportions. This is done in order to achieve the needed quality in the clay. The quality of the clay is also improved by adding tempering materials like ash, sand and cattle-dung. The temper counteracts excessive shrinkage, warping or splitting that may occur in sun drying and firing.

An idea of proportion is absolutely necessary for the potter who wants to improve his clay by adding temper. If temper is added more than in the necessary proportion, the clay becomes 'short' and loses its adhesiveness. If the temper is added too little, there is enough chance that the pots would crack. Some potters mix different ingredients by actual measurement. Usually, a basket is employed for this purpose. An experienced potter does not require any measure. He gets an idea of proportion just by looking into the heap of the materials. The calculation for the proportionate quantity of ingredients depends mainly upon their chemical nature. And, therefore, we find large variations in the quantity of tempering ingredients. The variations may occur within the district boundary. For example, the potters of Kshipra (Dewas: Madhya Pradesh) mix clay and temper in the following proportions:

Pili miṭṭi (yellow clay)	4 parts
Horse dung	1 part

Only about 20 kms away from Kshipra village, the potters of Dewas use the following proportions:

Pili miṭṭi (yellow clay)	4 parts
Horse dung	2 parts
Ash	½ part

Pili mṭṭi of village Kshipra is procured from an old bed of the river Kshipra. This clay contains sand and, therefore, requires less of temper. The clay procured by Dewas potters is more clayey and requires a great quantity of temper. Therefore, in this case both horse dung and ash are used. The proportion of the temper may vary also according to the type of ware to be prepared out. In Osmanabad (Maharashtra), when a *ranjan* (a storing receptacle made by hand) is to be prepared, the proportion of the clay and the temper are as follow :

Clay	6 parts
Horse dung	2 parts
Ash	1 part

The same potter prepares the clay and temper in the following proportion when he has to throw an ordinary pot on the wheel.

Clay	6 parts
Horse dung	1 part
Ash	1 part
White clay	½ part

In Dhar (Madhya Pradesh), cooking pots are prepared out of *kāli miṭṭi* (black and clayey soil), and water pots are prepared from *lāl miṭṭi* (red clay containing a little sand). The proportion of temper also varies.

For cooking pots :

Kāli miṭṭi	4 párts
Donkey's dung	4 parts

For water pots :

Kāli miṭṭi	4 parts
Donkey's dung or saw-dust	2 parts

In Udaipur (Rajasthan), the water pots are prepared only from *pannā* (alluvial clay), while for cooking pots three different types of clay are mixed in the following proportions :

Pannā (alluvial clay)	6 parts
Bundā (sandy clay)	4 parts
Gāro (clayey soil)	6 parts

In Jamnagar, ash is not used as a temper for red pots. Red pots are prepared only from yellow clay. For cooking pots black clay is used. In Junagadh, *khãro miṭṭi* (saline clay) is mixed with the clay out of which water jars are prepared. *Khāro miṭṭi* keeps the pot cool during summer. For the same reason, potters of Nohar (Rajasthan) use *kalami* soda (caustic soda) with the clay from which they prepare their famous water jars. The potters of Srinagar (Kashmir) prepare two separate clay lumps for cooking pots. The bottom of the pot is prepared out of the clay lump which is a mixture of *der mechi* (hard clay) and 50% of sand. The upper portion of the pot is prepared of the same type of clay in which only 10% of sand has been mixed. In the same manner, the potters of Jaisalmer prepare the bottom of the cooking pot only from *bundā miṭṭi* (sandy clay) and the neck and the body from alluvial clay. In Hooghly (West Bengal) also, the bottom of the pot is prepared out of a clay named *enṭel* and the upper part is made of *doãs*.

The kind of temper, which a potter uses, also depends upon the quality of the clay. But, unfortunately, some tempering materials have brought certain significant social problems. The problems arise on the question of using donkey's dung as a temper. The donkey is regarded as an impure beast by many Hindu castes, and,

therefore, the association of donkey pollutes a man. An interesting situation arises when two different sections of potters meet together ; one of them employs donkeys in their work, and the other does not do so. This subject will be dealt with separately in due course ; here only the chemical aspect of the temper will be discussed. The use of horse or donkey's dung has been found mostly in Chhindwara, Mandla. Bilaspur, Panna, Sidhi, Surguja, Dewas, Ujjain, Bhilsa, Gwalior, E. Nimar, W. Nimar, and Dhar in Madhya Pradesh ; Aurangabad, Nasik, Akola, Nander, Bir, Osmana-- bad, Chanda, Poona and Kolhapur in Maharashtra ; Udaipur, Ajmer and Sirohi in Rajasthan ; Jamnagar, Junagadh, Mehsana and Kaira in Gujarat ; Warangal, Adilabad, Karimnagar and Medak in Andhra Pradesh ; Bidar and Bijapur in Mysore State.

If we look into the soil map of India, we will find that the potters using donkey's dung occupy largely the regur area, popularly known as the black cotton soil area. Beyond this geographical limit, we do not find the use of horse's or donkey's dung. The circumstantial evidence suggests that the clay available to the potters of Central India necessitates the use of donkey's dung. Whenever the potters of this area were asked the reasons for the use of dung as temper, they gave exactly the same answer. One of the informants said, 'No amount of sand or ash can prevent the pot from cracking. It is only dung that counteracts the tendency of the pot to crack.'

Mixing of clay and temper is done, usually, when both the ingredients are dry. The temper is carefully sifted and mixed into the clay through the fingers. In case of donkey's or horse's dung, first of all, it is dried in the sun and sufficiently stirred with hand. It is then sifted in an iron sieve. The fine powder is mixed with the clay while it is dry. After the temper has been mixed with the clay, the whole thing is piled up and the required quantity of water is slowly poured into the hollow made at the centre of the pile. The clay is allowed to absorb water for some time and then finally treated by both the hands. The clay mass is brought to the mixing surface and thoroughly mixed by sprinkling water at intervals. Kneading follows this process soon after.

Kneading

The potters knead their clay first by both the hands and then stamp by foot (Figs. 2:7, 2:8). The whole lump of clay is parcelled into chunks each weighing 7 kgs to 11 kgs approximately. These chunks are meticulously kneaded by hands (Fig. 2:9), and, while kneading, if some unwanted material is traced out, it is eliminated

forthwith. The chunks are further sliced with a thin piece of wire so as to find out and remove the unwanted particles which might have escaped notice so far (Fig. 2 : 10). The chunks are mingled and remingled and thoroughly kneaded by the rotary movement of the foot. The potter prepares the clay in exactly the same way as dough is kneaded. In course of kneading, a small quantity of sand or ash is used to absorb water from the clay and also to prevent sticking of clay into mixing surface. The processed clay is covered with a piece of wet cloth or gunny sack to keep it damp until it is taken out for throwing.

Fig 2 : 7 Kneading of clay by hand

Fig 2 : 8 Kneading of clay by foot

Fig 2 : 9 Kneading of clay on a wooden plank

Fig 2 : 10 Slicing of clay to detect the unwanted particles

Kneading is done entirely by menfolk, and it takes about 3 to 4 hours. The clay may be stiffened or softened by kneading, according to the requirement of the potter, and its consistency is increased thereby. A potter in Aurangabad remarked, 'The potters of Maharashtra in general make the clay lump soft by kneading, while the Telangi potters make it stiff.' This difference has been observed between the two groups of potter living at the same place and using the same type of clay.

THROWING

Throwing a pot on the potter's wheel is a most fascinating experience. It is an art which a potter starts learning from childhood and gradually masters by practice. A potter's dexterity in the craft is largely responsible for throwing vessels in correct shape within minimum time. A lump of clay is placed on the wheel. The wheel rotates, and the potter manipulates his fingers with the clay lump deftly. The whole action is governed by certain systematic principles, and about a dozen of stages are gone through before the clay lump turns into a hollow ware. These stages come so quickly that unless an observer is vigilant, he will not be able to follow how and when a stage changes. In general, the pots are thrown in the following successive stages.

1. Preparation : Before starting the actual process of throwing the potter takes out the prepared clay lump and kneads it once more with his hands to bring about uniform consistency. After this final kneading, the lump of clay is formed into the shape of a cylinder. The size of the clay cylinder varies according to the type of ware a potter wants to manufacture. But it has been observed that the potters of North India in general take comparatively a small clay cylinder weighing about 2 to 3 kgs, and the South Indian potters choose a heavy one weighing about 5 to 8 kgs. The difference in throwing can be observed. In North India, the potters generally take a separate clay cylinder for each pot. In South India, the potters make more than one pot from one single clay cylinder. When a Maharastrian potter of Akola was asked to distinguish the method of working between himself and the Telangi potters, he immediately replied that he could not even turn the Telangi wheel when it was heavily loaded. After the preparation of clay cylinder, the immediate work of the potter remains is cleaning and damping the wheel-head on which the clay cylinder is to be placed. The potter has to be very careful in damping the wheel-head. If it is too little the clay will not stick to the wheel and if it is too much it will slip off the wheel while spining fast. Usually, the potter besmears a little clay on the damp wheel-head in order to hold the clay lump firmly.

2. Centering : The clay cylinder is flung on the centre of the wheel which is already spinning slowly (Fig. 2 : 11). Gently but firmly the potter presses his left hand against the clay cylinder to settle it compactly, symmetrically and centrally. In the case of foot-wheel, or the pivoted type of block-wheel which is continuously turned by hand, the potter is saved from the problems of wobbling which occurs in case of ordinary single wheel when the

clay lump is not accurately placed in the centre. By the movement of the wheel the potter at once makes out whether the clay cylinder has been placed at the centre or not. In case the centering is not satisfactory, he cuts out the additional clay by his four fingers from the wall of the moving clay cylinder and piles it over from the tilting side of the wheel to the opposite. This process continues till the clay cylinder becomes compact and symmetrical, and the wheel maintains perfect balance. During this operation the potter always puts his thumb and the hypothina (base of the palm below the thumb) on the top of the cylinder so as to prevent the clay from rising, and his four fingers hold the cylinder to avert the chances of spreading out.

Fig. 2 : 11 Centering

3. **Coning :** Centering is followed by coning. By this time the potter gives a further impetus to the momentum of the wheel, and the wheel starts spinning fast. The clay cylinder is clasped firmly with both the hands (Fig. 2 : 12). The palms close to the wrist are pressed against the front of the clay cylinder, and the fingers of both the hands join at the other side. Gentle but firm pressure of the palms and the fingers induce the clay cylinder to rise up (Fig. 2 : 13).

Fig 2 : 12 Coning

4. **Plunging :** The dome formed by coning is slowly pressed down by driving vertically the fingers of the two hands on the top of the dome (Fig. 2 : 14). In the beginning of the operation, the two thumbs folded at the first joint are joined and thrust together ; but slowly they separate leaving an opening in the dome on the support of the fingers which rest on the superior side of the dome. In this operation the fingers and the thumbs of both the hands maintain perfect harmony so that the dome may not be unevenly thin and torn.

5. **Drawing up :** By plunging and opening, the dome reduces to the original size of the clay cylinder. The clay is again drawn

Fig 2:13 Rising up the cone

Fig 2:14 Plunging

Fig 2:15 Drawing up

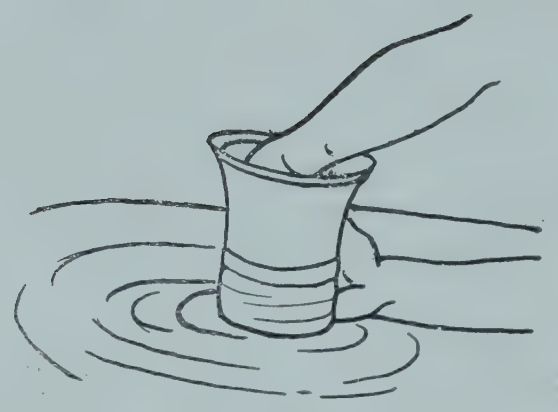
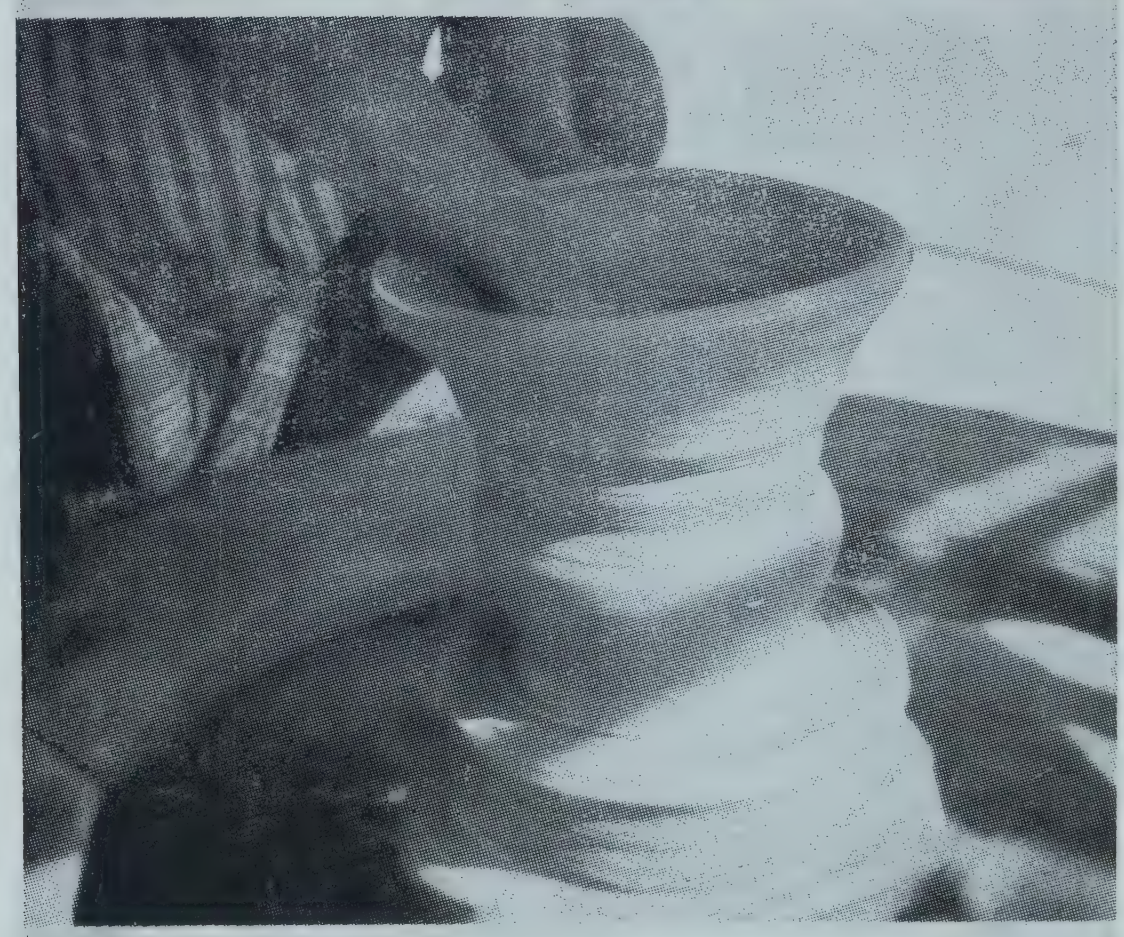


Fig 2:16 Thinning the wall

Fig 2:17 Forming

Fig 2:18 Forming

Coning



Plunging

Thinning the wall

A Vehlar woman pouring castor oil in the socket of a pivoted block-wheel

A Urali woman potter of Kerala scooping a pot

A woman potter from Madras polishing the vessel with beads

up by exerting a gentle pressure on the walls by the medial edge of the palms and the direction of the fingers held closely (Fig. 2 : 15). When the clay rises to the upper limit, the two thumbs are placed inside, and the fingers hold the outer wall to prevent the open top from flaring.

6. Thinning the wall : The wall of the cylinder which has been formed by opening and drawing up is considerably thick and requires thinning. The potter inserts his left hand into the clay cylinder and supports the outer wall with his right hand (Fig. 2 : 16). The clay cylinder moves anti-clockwise on the direction of the wheel. The palmar side of the finger tips are pressed against the inner wall, and the corresponding outer wall is pressed by the right palm of the potter. The two hands move simultaneously and work smoothly in such a balanced manner that the wall of the cylinder receives throughout an even thickness. This action goes on till the wall gets the intended thinness.

7. Forming : In this stage the position of the hands remains almost the same as in the stage of thinning the wall ; but the manipulation of fingers on the inner and outer wall is imparted to get the form in view (Fig. 2 : 17). With the left hand placed inside and right hand outside the walls are raised gradually from the bottom to the top. The pressure of the hands is relaxed when they reach the top of the cylinder (Fig. 2 : 18). By skilful manipulation of the fingers of the left hand and the right palm the mouth of the cylinder is slightly narrowed in case it is to be made narrow. Forming may be also done with a piece of bamboo stick (Fig. 2 : 19).

8. Collaring : With the four fingers of the left hand inside the neck of the cylinder and the thumb outside, the potter joins his right thumb close to the left and gives a pinching pressure on the neck (Fig. 2 : 20). The pressure of the thumbs and the fingers is repeatedly given by changing the position of the fingers, tips and the nails in different ways as and when required for the intended collar and the rim of the vessel. By the position of the fingers and their tips, the form and the size of the rim are determined (Fig. 2 : 21). While collaring, sometimes the potter uses a bamboo, or a hornshaper, for making the final shape and also for steadying the walls of the pot.

9. Smoothening : After the pot has received the desired shape, and the wall has been made steady, the next task of the potter is to smoothen the brim and the surface of the pot with a wet mop which may be a piece of cloth or a green young fig leaf (Fig.

Fig 2:19 Forming by a bamboo shaper

Fig 2:20 Collaring

Fig 2:21 Collaring

Fig 2: 22 Smoothening

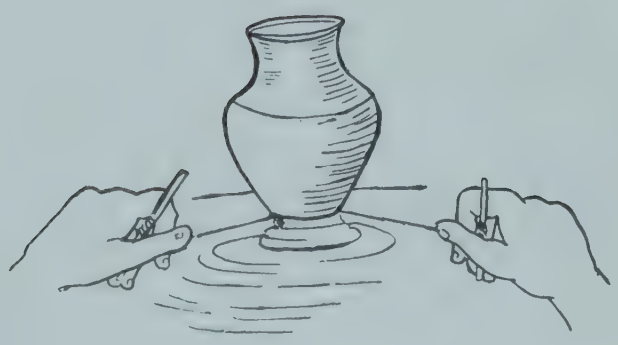


Fig 2:23 Cutting off

Fig 2:24 Cutting off

2 : 22). The fig leaf is often besmeared with mustard oil before moistening. Only the ventral side of the leaf is used.

10. Cutting off : When the potter is satisfied with the smoothening, he takes a piece of thread, an iron wire or a coconut leaf and draws it underneath the pot (Fig. 2 : 23). Sometimes, a needle is used as a cutter. A strong pressure of the palm edge may also be given at the base of the pot (Fig. 2 : 24). Cutting off is usually done while the wheel is still spinning.

Fig 2 : 25 Removing the pot from the wheel-head

11. Removal : When removing the pot, the wheel is slowed down, and with both lower arms or in a hollow formed by cupping two hands the pot is lifted at the base (Fig. 2 : 25). It is usually the thrower who removes the vessel from the wheel. But among the Vellala potters of Madras and Kulala Nairs of Kerala a boy or girl remains near the wheel to remove the vessel (Fig. 2 : 26).

Fig 2 : 26 Removing the pot from the wheel-head

The time taken in completing the stages of throwing depends upon many human and mechanical factors. The speed of the wheel, the strength of the thrower, the quality of the clay cylinder and the size of the pot turned on are some of the factors which influence the working time of throwing. But the greatest skill of the potter which should be considered is the accuracy in

throwing. For example, a pot of the following dimension takes about 3 minutes 20 seconds to complete all the actual stages in throwing.

Width at the mouth of the pot ..	20.0 cm
Width at the bottom of the pot ..	22.5 cm
Circumference of the body ..	91.5 cm
Height of the pot	47.5 cm

The actual stages in throwing takes the time as follows:

Centering		40 seconds
Coning		07 seconds
Plunging		10 seconds
Drawing up		07 seconds
Thinning the wall		25 seconds
Forming		15 seconds
Collaring		26 seconds
Smoothening	1 minute	10 seconds
Total time taken ..	3 minutes	20 seconds

In one sitting, the same potter who has thrown the pot described above, takes almost the same time for preparing the pot of the same size on the same wheel.

1st pot	3 minutes 20 seconds
2nd pot	3 minutes 10 seconds
3rd pot	3 minutes 25 seconds
4th pot	2 minutes 59 seconds
5th pot	3 minutes 02 seconds

When five young potters were asked to prepare the same size of the pot on the same wheel they took almost the same time.

1st potter	3 minutes 20 seconds
2nd potter	3 minutes 45 seconds
3rd potter	4 minutes 05 seconds
4th potter	3 minutes 15 seconds
5th potter	3 minutes 35 seconds

All the potters who were asked to throw on the wheel were between 30 and 40. They possessed normal health and worked in the morning. The time calculated in the actual stages of throwing does not include the time taken by the potter in other activities, such as washing the hand or taking a tool, etc. The time was recorded by a stop watch. It was not possible to check the speed of the wheel in all the stages of throwing, and, therefore, we do not know how far the speed of the wheel brings change in the time of throwing.

No amount of description can truly bring out all the processes in throwing. The above description relates only to the most important and major stages in throwing, and it holds good generally for all the pots which are to be made on the wheel. Minor

difference, in the manipulation of hands, fingers, finger-tips, and nails may occur in the making of each new type of vessel, but they are matters of finer details. The whole action requires careful and learned approach of the experienced hand.

BEATING

The technique of beating and enlarging is largely applied in case of hand-made pottery. But its application on wheel-thrown pot is perhaps very rare. Thus, the association of turning technique with beating technique is one of the most interesting and typical features of Indian pottery manufacture.

Indian potters believe that the technique of beating gives more cohesion to the clay of the pots thrown on the wheel. Another purpose of beating is to enlarge the size of the pot which has been previously turned on the wheel. Excepting for some small cups, earthen lamps, toys and a few other wares, which will be discussed in due course, all other vessels receive the treatment of beating. Beating involves a number of operations which in themselves vary according to the type of ware to be prepared. But, considering the major techniques, we find that there are four important methods which the potters of India follow. These four methods, as it will appear from the following description, can be distinguished from one another mainly on the system of working ; but in each case the essential purpose of beating is to give the clay a laminar structure and also to enlarge the size of the pot. On the basis of their geographical distribution in India, we can name these four important methods of beating as North-western technique, Southern technique, Eastern technique and Central technique.

North-western Technique

In North-western India, usually during the last stage of throwing the pot is detached from the wheel with a thick layer of clay at its bottom. In some places, only when a frying pan is to be prepared, it is cut off from the wheel in such a way that a hole is left at the bottom. This hole is closed by subsequent beating.

The unfinished pot which has been thrown on the wheel is left for a little hardening. The pot may be allowed to harden under the direct rays of the sun, or in the shade, or in a bed of ash. When the pot is kept under the sun, the potter has to be very careful about the uniform hardening of the pot. All types of clay cannot stand the sun. But pots can safely be hardened in the shade. The last method of hardening is to keep the pot in an

ash bed overnight. The ash bed absorbs the moisture in the pot. Any one of these methods can be adopted for hardening according to the type of clay, weather, and also the time at the disposal of the potter for beating. The pot should not be very hard, nor should it be very wet ; either of the conditions may cause spoilage of the pot during beating.

The interval between throwing and beating depends upon the weather. In dry weather, the pots are hardened wihin 4 to 6 hours after throwing. In humid weather, it may take little more time. Most of the potters of Northern India throw the pots in the evening and start beating them next morning.

When the pot is leather-hard, it is taken out for beating. The pot is beaten on a baked clay base (Fig. 2 : 27). Holding a clay anvil by its knob, the potter inserts his left hand inside the pot and with a wooden beater in his right hand begins the operation of beating. In North India, usually sand is used at the time of beating, but in Western India ash is largely used for this purpose. Ash or sand is used to prevent sticking of the beater and anvil to the pot under process. Beater and anvil are moistened with water at regular intervals. The potter keeps by his side a wet piece of cloth which serves as a sponge. The beating base is also treated with sand or ash for the same purpose.

Fig 2 : 27 Beating on a baked clay base

The beating is not done at a stretch. It is usually done in three to four stages with time gaps between each stage. The interval between the two stages depends upon the weather, and also the amount of work a potter has to do during the day. The number of stages may be reduced to two to three according to the convenience of the potter. But in general there are four stages in beating. The time taken in each stage of beating depends upon the size of the pot under process.

First stage : In the first stage, the potter takes a heavy flat beater for beating the bottom of the pot. The bottom of the pot when cut from the wheel remains flat and rich with clay (Fig. 2 : 28a). The thick and flat bottom is beaten between the anvil and

INDIA

SCALE

MILES 100 0 100 200 300 MILES

K.M. 100 0 100 200 300 400 500 K.M.

72° 80° 88° 96°

36° 28° 20° 12°

JAMMU AND KASHMIR

H.P.

H.PRADESH

PUNJAB

RAJASTHAN

UTTAR PRADESH

BIHAR

SIKKIM

BHUTAN

N. E. F. A

ASSAM

NAGALAND

MANIPUR

TRIPURA

W. BENGAL

GUJARAT

MADHYA PRADESH

DIU (G.D.& D.)

DAMAN (G.D.& D.)

ORISSA

MAHARASHTRA

ANDHRA

GOA (GOA DAMAN AND DIU)

MYSORE

KERALA

MADRAS

LACCADIVE MINICOY & AMINDIVI IS. (INDIA)

ANDAMAN AND NICOBAR ISLANDS (INDIA)

REFERENCE

TECHNIQUES OF BEATING

NORTH WESTERN TECHNIQUE

SOUTHERN TECHNIQUE

EASTERN TEGHNIQUE

CENTRAL TECHNIQUE

STATE BOUNDARY

INTERNATIONAL BOUNDARY

DRAWN BY A.C. DEY. M.A.

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the beater for about four minutes. The anvil supports the wall of the pot from inside and the beater beats on the corresponding place from outside. At this stage, the pot is laterally kept in the beating base, and the bottom of the pot is towards the right-hand side of the potter. The bottom of the pot is thus beaten into a convex shape (Fig. 2 : 28b).

In the case of frying pan (*tāwā*), the bottom hole, which appears at the time of 'cutting' from the wheel, is closed by expanding the clay wall with the help of beater and anvil. Sometimes, only an anvil is used for closing the bottom hole. The bottom of the pan rests on the beating base, and the anvil operates like a rammer.

Second stage : In the second stage, the potter uses the same beater and anvil which have been used in the first stage. This time the shoulder of the pot is beaten all over by turning the pot in the beating base. The beating takes about six minutes to bring

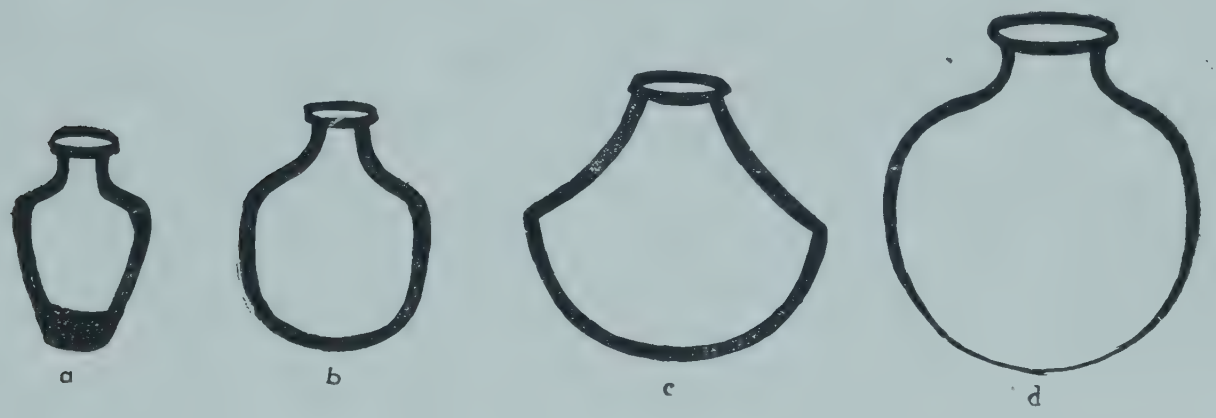

Fig 2 : 28 Changing shape of the pot under beating

the bottom and the shoulder surface into a uniform curvature. The pot now becomes a little enlarged and comparatively thin. The shoulder of the pot is carefully beaten and the bottom remains convex. After it has been beaten to the desired thinness, the potter swiftly flings the pot on a concave rest which is either a potsherd or a wide-mouthed baked clay vessel specially prepared for this purpose. When the bottom of the pot is suitably accommodated in the pot-rest, the shoulder of the pot is gently pressed from the above so that it takes a slanting shape (Fig. 2 : 28c).

Third stage : In the third stage, the potter takes an anvil having convex working surface and a concave beater. The pot is beaten from shoulder to the bottom and the ridge which was formed by the slanting shoulder and the convex bottom gradually disappears by gentle beating. The pot is enlarged to the desired size and thinness in about ten minutes (Fig. 2 : 28 d).

Fourth stage : In the fourth stage, the potter holds a light anvil and a light beater of the same type as required in the third stage. The last stage of beating is directed towards achieving the smoothness and symmetry which are so essential for a well-shaped pot. It takes about 5 minutes to give this finishing touch to the pot.

An interesting technique of giving a perfect shape to the pot by means of air pressure is known to many potters of North-western India. After the pot has received the final treatment of beating, the mouth of the pot is fully and deftly covered by a baked clay lid, and while the pot is lifted up by both the hands a firm jerk is rapidly exerted on the pot. With the pressure of the air thus caused by, the pot blows into perfect shape. This technique which is known at *hawā bharānā* (filling the air) is peculiar only to north-western potters.

Sometimes, at this stage of beating, the pot receives the last treatment of smoothening and levelling by a lunate baked clay tool. When this method is employed, it is not necessary to treat it by air-pressure.

The North-western technique of beating is employed largely in Jammu and Kashmir, Himachal Pradesh, the Punjab, Uttar Pradesh, Rajasthan, and also in Kutch and Mehsana in Gujarat.

Southern Technique

Unlike the North-western technique the potters of South India detach the pot from the wheel in such a way that a hole is left at

Fig 2 : 29(a) The bottom hole of the pot

Fig 2 : 29(b) Closing the bottom hole of the pot

the bottom. This hole is provided in all types of earthenware, excepting a small cup, an earthen lamp, and a narrow-necked water jar. At the time of throwing, the column formed by 'coning'

is 'plunged' deep into the base, and when the pot is cut off from the wheel, there remains a large hole at the bottom. Obviously, only the neck and the shoulder of the pot is thrown on the wheel. The lower part of the shoulder is left with a thick wall, and in the process of beating, as it gradually enlarges, the hole at the bottom is closed (Figs. 2: 29a, 2: 29b, 2: 29c).

Fig 2 : 29(c) Enlarging the pot

In South India, the unfinished pots are hardened in the same way as done in the north-western technique, with an exception that the pots are never embedded in an ash-bed for the purpose of hardening.

The leather-hard pot is beaten with a round stone anvil and a wooden beater. The potter holds the anvil in his left palm and the beater in his right hand. The beating is done usually in two stages. Only in case of a big pot smoothening comes in the third stage.

First stage : The first task in beating is to close the bottom-hole. The pot may be held between the left thigh and the right foot (Fig. 2 : 30) on the stretched legs (Fig. 2 : 31), or on a rolled

Fig 2 : 30 Holding the pot between thigh and right foot

Fig 2 : 31 Beating the pot on the stretched out legs

mat (Fig. 2:32). The pot may be placed either on the bare leg, of on a goat-skin. These methods of holding the pot may differ from place to place or from potter to potter; but technically all the potters of South India do not use any kind of solid base for beating as in case of the north-western technique.

Fig 2:32 Beating the pot on a rolled mat

Before actually beating, the potter examines the condition of the pot. If the pot has hardened too much, it is moistened with a wet piece of cloth, and the beater and the anvil may also be dipped in water immediately before use. In case, the potter feels the necessity of scraping out the excess clay in the lower part of the pot, he may do it by an oyster shell or an iron scraper.

With a flat working surfaced anvil and a heavy beater, the potter starts beating the pot in a downward direction, i.e., from shoulder to the bottom. This is done in order to close the hole left at the bottom of the pot. With the strokes of the beater the layer of clay at the shoulder expands considerably, and the hole automatically closes. In North-western India, the potter beats the pot laterally on a beating base. This technological difference between north-western technique and southern technique is due to the different nature of the bottoms. In North-western India, there remains no hole in the bottom when the pot is removed from the wheel. The bottom of the pot is left flat and thick. This thick and flat bottom is beaten into a thin and convex shape. Technically, the need is for the potter to beat the bottom laterally on a strong and solid base.

After beating the pot in a downward direction, when the hole closes within a minute's time the potter leaves the unfinished pot for further hardening.

Second stage: In the second stage, the pot is enlarged and smoothened by another pair of beater and anvil. For enlarging the pots, a heavy flat surfaced beater and a round anvil with a flat working surface are used. As the work of enlargement progresses, the potter changes his tools. For smoothening the vessel, an anvil with a convex surface and a concave beater are used.

The pots are slowly turned from right to left as the potter advances in the process of beating. The inner side of the pot is dressed with fine kiln ash or sand to prevent sticking. The beater is moistened from time to time. It takes about 8 to 12 minutes to complete the processes of enlargment and smoothening. In the case of a big pot, smoothening is done after some interval at the enlargement stage.

The Southern technique of beating is followed in Mysore, Kerala, Madras, Andhra Pradesh, Orissa, and parts of West Bengal.

Eastern Technique

Though the Eastern technique of beating bears a close affinity to the Southern technique, it has some remarkable characters of its own. In principle, both the Southern and the Eastern potters detach the pot from the wheel without a complete bottom. In case of the Southern technique, the neck and the shoulder of

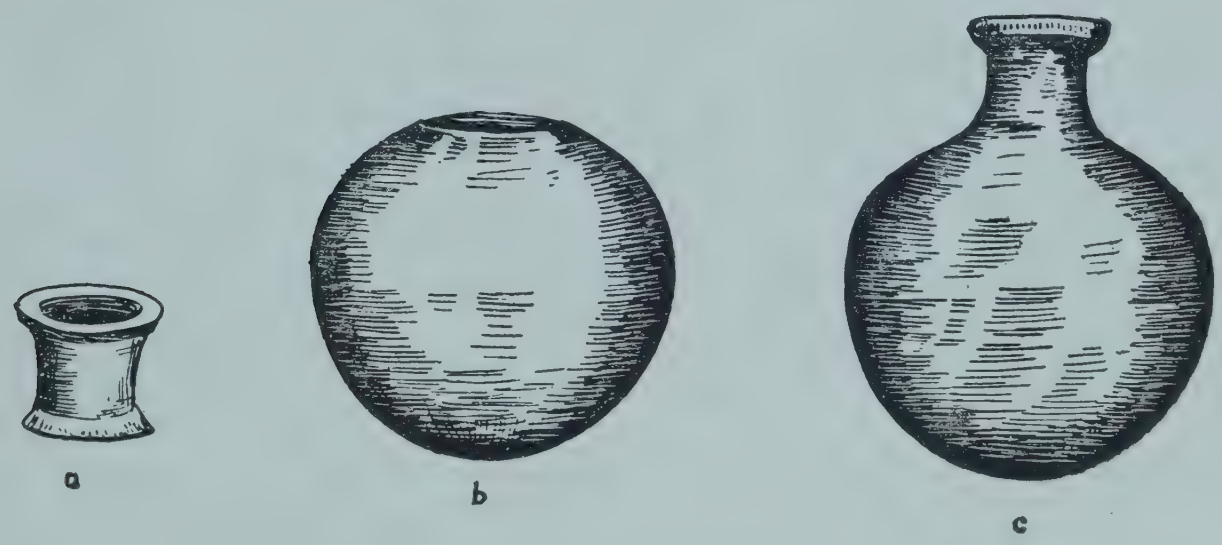

Fig 2 : 33 Separately prepared body and the neck of the pot joined together

the pot are thrown on the wheel, and the thick wall of the shoulder is subsequently beaten to complete the bottom of the pot by closing the hole. In the Eastern technique, the bottom is separately prepared by hand and is joined with the neck and the shoulder in course of beating. Sometimes, only the neck is thrown on the wheel, and the bottom and the shoulder of the pot are separately prepared by hand, and the two are then joined together (Fig. 2: 33).

A noticeable difference between the Southern and Eastern techniques lies in the use of beating base. As we have seen earlier, in the Southern technique, the pots are invariably beaten on the legs, and no solid base is used for this purpose. The potters of Eastern India use a baked clay base like the one we have seen in the North-western technique.

The bottom of the lower part of the pot is made of clay which is first prepared like dough for bread by hand. The clay disk is further shaped convex and the finishing touch is given by a flat anvil, invariably made of baked clay. The wheel-thrown portion of the neck and the shoulder, and the hand-made portion of the bottom of the pot, are allowed to harden. When they are leather-hard, the upper part of the pot is first taken for beating. The lower end of the upper part is slightly beaten with a heavier beater to enlarge it to fit in with the lower part or the bottom of the pot. The margins of the upper and the lower part are moistened with a cloth sponge immediately before joining. After joining, the treatment by beater and anvil begins. The beating goes on by turning the pot laterally on the baked clay base with a beater and an anvil. First, beating is done with a heavier beater. The second stage of smoothening follows by gentle stroke with light beater. All the other paraphernalias of beating are the same as we have seen in the case of the North-western and Southern techniques.

In course of beating, the potter minutely observes the pot, and if any undesired element like gravels, roots, etc., which have so far escaped his notice, is found, he immediately removes it with a bamboo or iron scraper. The damaged area is then repaired with clay and smoothened with a piece of wet cloth.

The Eastern technique occupies largely the regions of West Bengal, Assam, and parts of Bihar. Sporadic distribution of this technique has been found in Goa, and the Ratnagiri district of Maharashtra.

Central Technique

In Central India, we find an interesting combination of the North-western and Southern techniques. Here, when the pot is detached from the wheel, there may or may not remain a hole at its bottom. In those pots which are to be kept on the oven, a hole is necessarily left on the bottom at the time of throwing. In Kutch (Gujarat), the pot is removed from the wheel with a complete bottom; but before it is taken for beating a hole is made with a needle. In Akola (Maharashtra), the pot is cut off from the wheel with a hole at the bottom, but immediately this hole is closed by an additional lump of clay. In Madhya Pradesh, a hole is left at the bottom in small pots.

Again, in the Central technique, the pots are beaten in a soft base or a pit (Figs. 2 : 34, 2 : 35). Thus, it tends to adopt the North-western technique of beating. The techniques involved in

hardening the unfinished pot, enlarging, and smoothening of the vessels, and beating stages in general are not different than that we have seen in North-western India.

Fig 2 : 34 Beating of pot on a basket base

Fig 2 : 35 Beating of pot in a pit

The Central technique is in vogue all over Maharashtra, Gujarat and Madhya Pradesh.

In many places, beating is a man's job ; but sometimes it is also done by woman. Among the Vellala potters of Madras, women alone beat the pots into the required shapes. In Kerala, among the Kulala Nairs and Anduri Nairs, beating is also a woman's job. In Mysore State, among the Kannada and Lingayat potters, men seldom take up the beating work, excepting in South Kanara, Chikmagalur and North Kanara. Among the Konkani potters of North Kanara, women do not beat the pots at all. In Champaran (Bihar) and Mayurbhanj (Orissa), whenever the women beat the pot, they do not use the beater (Fig. 2 : 36). They beat the bottom of the pot with a clay anvil which is provided with a hole on its knob. A long stick is inserted into this hole and by holding the stick they operate the anvil like a rammer. However, in these places women do not do the entire beating, and the male potters have to complete the pot whose initial beating has been done by women.

Fig 2 : 36 Woman beats the pot

All the techniques described above under the four broad classifications claim only the major operations in beating. In general, the

technique of beating a wheel-turned pot has a well-defined process which is more or less followed by all the potters of the country. The above description also suggests that in India as the pots are never completed on the wheel, the technique of beating has to be resorted to bring a laminar structure to the clay and also to remove the striations on its surface.

FINISHING AND DECORATION

Shaving

We have seen earlier that the pots thrown on the wheel are never complete, and they undergo a further stage—beating. Some of the potteries which are small in size need a different treatment other than beating. They possibly cannot be beaten, may be for the smallness of size and, therefore, to pare off the additional clay or to obtain a good profile the surface of the pot is shaved off.

Among the wheel-thrown pots small cups and smoking pipes are usually shaved down after they have become leather-hard. Shaving may be done either on the wheel or without a wheel. The thick bottom of the cup may be shaved by a sharp bamboo rind or an iron knife. The cup may be kept inverted on a smooth ground while shaving is done, or it may be held between both the feet and then conveniently shaved. It may also be placed with bottom-up on the wheel and fixed in this position with a roll of slightly stiffened clay. For smoking pipes, a raw clay cylinder may be used in the same way as a holder. The wheel is rotated smoothly, and the potter operates on the wall of the pot with different shaving tools as and when required. A series of spiral shaves continues until the intended profile is obtained.

Fig 2 : 37 Shaving a smoking pipe

In Almora (Uttar Pradesh), the smoking pipe is shaved by a wooden instrument called *kharad*. The smoking pipe is wedged into a stick which horizontally fits into two vertical fixed poles

about 30 cm long. The lathe which holds the smoking pipe is driven by a string like a country knife grinder, and the shaving tool is directed on the smoking pipe to bring the desired profile (Fig. 2 : 37).

The shaving technique applied on a wheel-thrown pot is very popular in North-western India, particularly in Rajasthan, the Punjab and Uttar Pradesh. The technique of shaving the pot on the wheel is known as *kharad*. The Muslim potters are said to be highly skilled in this technique. This technique has also been met with in Bihar, West Bengal and Orissa. In various parts of Central and South India, shaving is done without the use of wheel.

Slip Treatment

All the pots are coated with a slip. The slip is a yellow or red ochre, and when applied, it gives bright or dark red colour to the pot after firing. There are different varieties of haematites and ochres which are known by the local names as *geru, hirmich, ramraj, bani, kabis, err manu, simannu, chimmanu, dhau,* and *vellamannu.*

The method of preparing the slip varies according to the type of ochre used. *Geru, hirmich* and *ramraj* are the earthy forms of yellow and red ochre and may be obtained from the market. After it has been powdered and diluted in water, it may straight be applied on the pot. The preparation of *bani* and *kabis* is little different. They are yellow levigatal ochre and sometimes available in a tank bed. They may be applied simply after being diluted in rain water ; but for better results *bani* and *kabis* are prepared by two different methods—one by boiling and another by souring. After sifting, *bani* or *kabis* may be boiled in tank water until it becomes a thick paste. The paste is dried in the sun, and whenever required it is again diluted in water. The potters of Nizambad (Uttar Pradesh) prepare a very good quality of slip by souring the following ingredients :

Kabis	10 kgs
Rah ke pani	5 kgs
Aam ka chal	2 kgs
Bans ka chal	½ kg
Arsa ka patta	½ kg

Kabis is a yellow levigated ochre. It is powdered and sifted before other ingredients are mixed. *Reh* is a saline efflorescence composed of a mixture of sodium carbonate, sulphate and chloride, together with varying proportions of calcium and magnesium salts.

It is found on the surface of alluvial soils. The decanted water from *reh* is used in the preparation of slip. *Aam ka chal* is the bark of the mango tree, and *bans ka patta* is the green leaf of bamboo. *Arsa* is a wild plant, and its leaves are also used. All these leaves, bark and yellow levigated ochre are thoroughly mixed with the decanted water. The fluid is allowed to sour for about a fortnight or so and then dried in the sun. When fully desiccated, it is pulverised and sifted. During use the fine powder is again diluted into the required quantity of water. The application of this slip is the secret of the highly lustrous red and black pottery of Nizambad potters for which they are famous all over northern India. *Errmanu, simannu, chimmanu* and *dhau* are also the earthy forms of ochres, and in South India they are largely used as slip for pottery. Sometimes they are mixed with rice gruel and allowed to sour for about twelve days, and then the dried material is diluted and sifted at the time of use. In Madras and parts of Andra Pradesh, the slip is sometimes prepared by boiling *errmanu* with raw *tendu* (Diospyros Eberum) fruit. *Vellamannu* is a levigated ochre of white and yellow colour. It is powdered and diluted in tank water at the time of use. The slurry prepared from *vellamannu* looks like butter. In West Bengal, red ochre is sometimes thoroughly mixed in a fluid prepared by boiling *maghaikhayer* (catechu imported from Magah in Bihar) and soda. In parts of Assam also, catechu is mixed with the red ochre in the following proportion :

Red ochre	5 kgs
Catechu (acacia)	1 kg
Caustic soda	1 kg

The above ingredients are diluted in the required quantity of water and boiled in an earthen receptacle for about 45 minutes to one hour. Sometimes, brown slip is obtained by dissolving the following ingredients in water :

Red ochre	10 kgs
Catechu	50 grams
Mango bark	250 grams

Dried pots are covered with slip by the same methods as are used in glazing. The slip may be applied thick or thin according to the requirements of the potter. When this slip is applied, the pots may be dipped into it completely. Thick slip is always, applied on the pot with a piece of cloth or bunch of feathers (Fig. 2 : 38). Sometimes, the slip is applied only on the neck and the shoulder of the pot. The purpose of slipping may be to do away with too much of porosity in the vessel. Another purpose, which

is apparent from the results of firing, is to give lustre to the pot. When the slipped pots are fired, they get highly lustrous red or black according to the condition of firing. After oxidation, the pot comes out red, and under reduction temperature firing the same slip may give a shining black colour to the pot. In parts of

Fig 2 : 38 Slipping

Fig 2 : 39 Polishing

Mithila (Bihar), sometimes the slip is trailed over carelessly on the body of the pot, and, after firing, it gives a pleasing contrast with the natural colour of clay of which the pot is made.

Polishing

All the pots that have been treated with the slip are required to be polished or burnished after the slip has dried. The technique of polishing is known among the potters all over the country, but while some of the potters take extra care in polishing, the others do it perfunctorily. The purpose of polishing is to brighten the surface of the pot.

In the simplest form, when not much care or pain is taken, the pots may be burnished with a piece of cloth, a stone pebble, coconut shell, mussel shell, a wild fruit like *kakkamkaya* (gilla : Mimosa scandeors), or any other tool specially made for this purpose (Fig. 2 : 39). In this case, burnishing is done on the surface of the pot which has already been treated by the slip, and no extra material is applied exclusively for the purpose of brightening.

In various places in Andhra Pradesh and Maharashtra, a graphite bearing powder called *bhing* or *bingam* is applied on the pots after slipping. This powder may be applied dry or being diluted in the rice gruel on the pots which have been coated with the slip. It is applied to those pots which are to be fired black. The application of this graphite bearing powder and burnishing gives shining black colour to the pot when fired under reduction temperature. Red and yellow ochre in association with mica or any such paint minerals are also applied in various parts of India for the same purpose in case of both black and red pottery.

The best result in polishing can be achieved when cooking oil is applied. But this is laborious and expensive job and, therefore, limited to decorative pots. It may also be applied to the earthen vases of daily use. In various parts of Maharashtra, kerosene oil is used for economy when a large number of ordinary pots are to be treated. In Andhra Pradesh and parts of Mysore, linseed and castor oil are used for this purpose.

The potters of Nizambad (Uttar Pradesh) and Patan (Gujarat) make highly polished red or black pottery. The pot is first treated with *kabis* slip, and when dry, its surface is annointed with mustard oil and thoroughly rubbed by a piece of woollen cloth. The polishing is done in the same way as in the case of the shoe and continues till the surface of the pot becomes glossy. Instead of anointing the surface of the pot, sometimes the polishing tool of pebble or glass beads is besmeared with oil.

A highly polished ware requires no decoration, and, therefore, in this case polishing bring a ware to the finished state.

Painting

Pots may be painted either before firing or after firing. When the pots are to be painted before firing, various types of ochres and metallic colours are used. In this case, after receiving a coating of slip, the pots may be painted. For the post-firing painting, usually, vegetable or chemical colours are used. The techniques of painting before firing is known only among the potters of North-western India, where even the pots of daily use are painted. But in other parts of India only the ceremonial pots may be painted after firing.

The technique of painting will be elaborated in a separate chapter on painting.

Lacquering

The technique of lacquering on a fired pot is known to some potters of Rajasthan, Maharashtra, and Mysore. The potters of

Ajmer (Rajasthan) who are famous for lacquer work on pottery, varnish the pots with lac in three colour designs. Lac resin is powdered and sifted. Yellow, red and green colours are mixed separately with the desired quantity of powder. Thin colour sticks are prepared by heating the coloured powder. A coating of lac is given on the surface of the pot in parts where the designs are to be made. The pot is heated before lac is applied. After this coating of lac, the pot is allowed to cool for some time. When the coloured designs are to be made, the pot is again filled with embers, and as it is hot the coloured sticks are used on the lac coated surface of the pot in the same way as one writes with a pencil. Usually, geometrical designs are drawn.

The potters of Aurangabad (Maharashtra) prepare a lac-ball, and when the pot is hot, it is rubbed on the surface of the pot. Lacquer work is done usually on the jars which are to be used for storing pickles. It is said that mango pickles are preserved best in a lacquered jar.

In Chikmagalur (Mysore), the pot is heated by burning charcoal and the liquid of the lac which has also been heated, is applied with a piece of folded cloth.

Stamping and Inlay

For the purpose of decoration pots are stamped with seals in many places, particularly in North India. As soon as the pot is firm to the touch, stamps or seals may be impressed on it directly (Fig. 2 : 40). This method can be applied only on wheel-thrown

Fig 2 : 40 Stamping

Fig 2 : 41 Engraving the patterns

pot. Naturalistic and geometrical designs form the patterns in stamping.

The impressions obtained by pressing the stamps directly on the soft wall of the pot are used as a basis for inlay. Mica powder or even ordinary dry lime may be inlaid into the hollows. The potters of Nizambad (Uttar Pradesh) are famous for their inlay work. They prepare a white powder by mixing mercury and lead which is applied only on the fired pots. A pinch of powder is pasted well into the impressions left on the pot. The pot is moistened slightly before inlaying. The silvery pattern is sharply and flatly exposed by wiping out the surface of the pot with a piece of cloth.

Fig 2:42 Geometrical and naturalistic patterns on the engraved pots

Engraving

The decorative patterns are made on the green ware with various types of sharp and pointed engraving tools (Fig. 2: 41). Crisp and attractive patterns can be cut into the wall of the pot when it is leather-hard. The dried pots are sometimes temporarily fixed on the wheel and rotated smoothly. The pointed tool is directed on the wall of the pot, and in a second's time deep furrows form a pleasing pattern. Fine bamboo combs make a number of parallel furrows in the wall of the pot. Many other geometrical patterns are made on the wall of the pot (Fig. 2: 42). The pot is firmly held in the left hand and with a needle in his right hand the potter en-

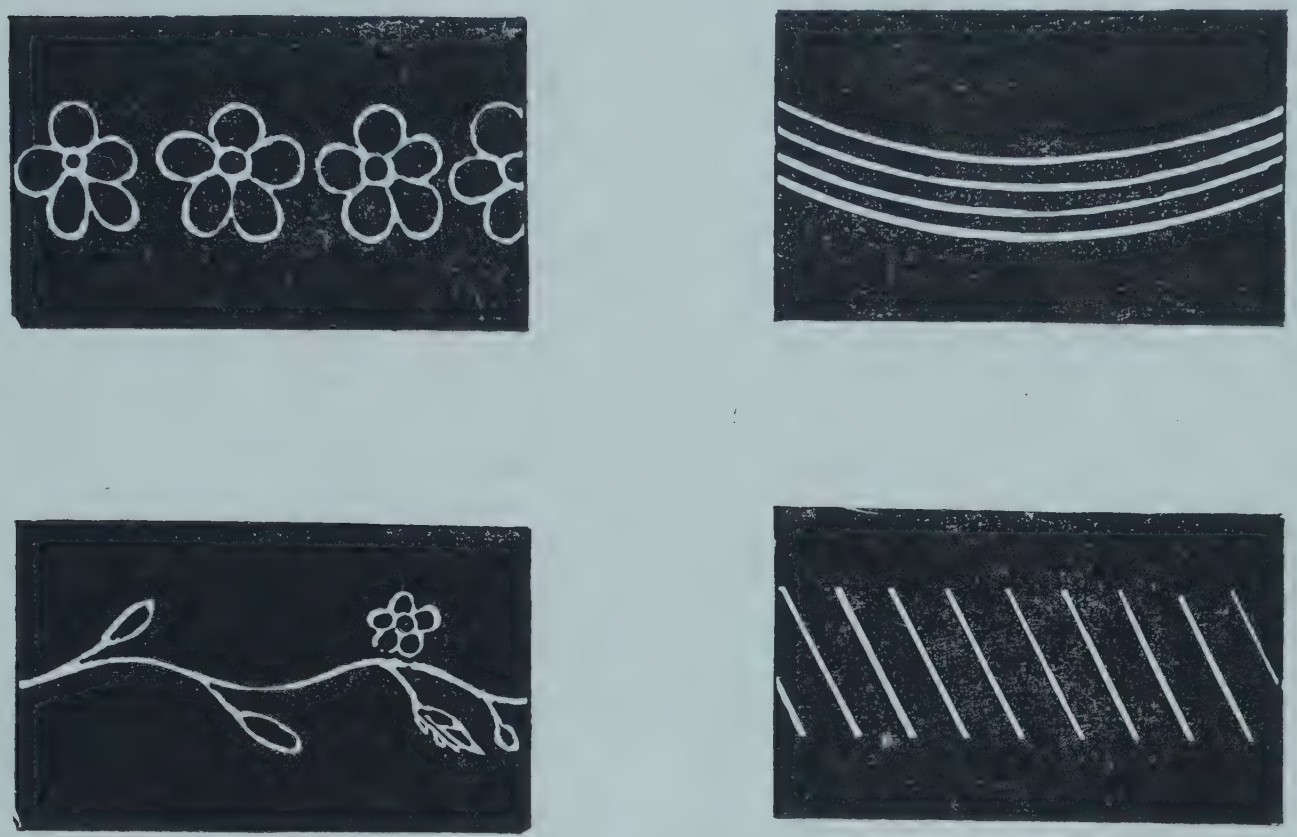

Fig 2 : 42 Geometrical and naturalistic patterns on the engraved pots

Fig 2 : 42 Geometrical and naturalistic patterns on the engraved pots

graves various designs freely as if he were writing on a paper.

Simple engraving with furrowed designs is done in various parts of India, but the potters of Nizambad (Uttar Pradesh) and Patan (Gujarat) are famous for their skill.

Cut Facets

Another method of decorating the pots which is known to the Indian potters is that of cut surfaces. It is done on the half-dried pots by means of sharp instrument with a blade like that of a knife. While throwing the walls where cut decoration is to be made are left thicker. The surface of the wall is chiselled by superficial cuts of various designs. The rim and the neck of the pot may also be decorated by cut facets (Fig. 2 : 43). The technique is applied in the same way as that of the method of incision on the wood or ivory.

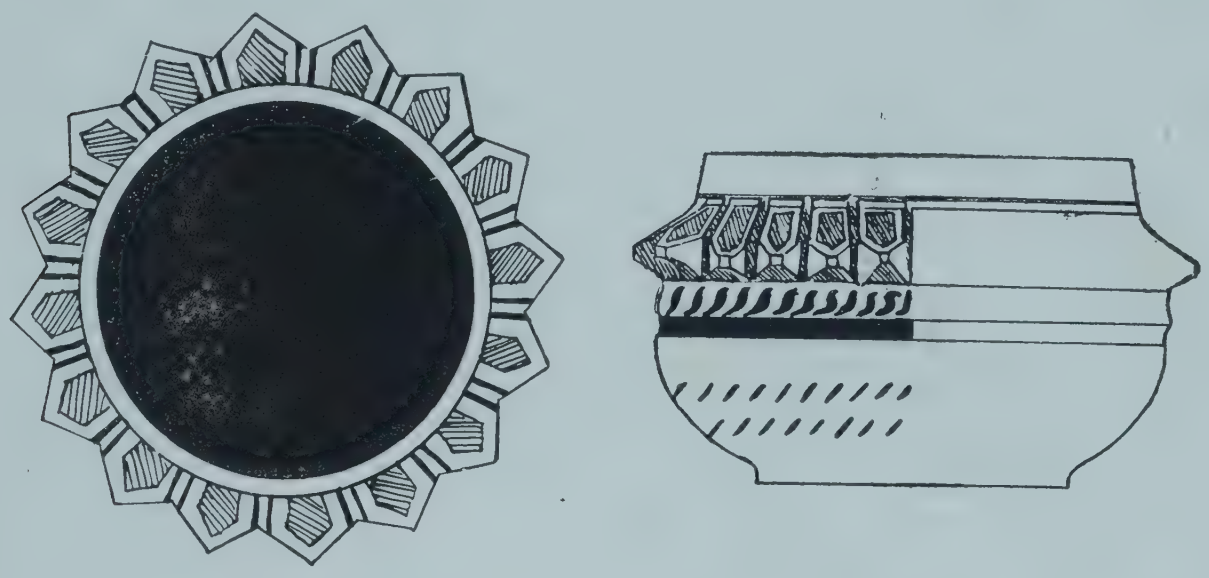

Fig 2 : 43 Cut facets of an earthen pot

It is a laborious method of decoration and is applied only on artistic pottery. This technique is very popular among the potters of Kangra Valley (the Punjab) and Nohar (Rajasthan). Sometimes, the Muslim potters of Uttar Pradesh also decorate their pots by this method of incision.

Relief Designs

Usually in big water jars or storing receptacles, relief designs are made by affixing additional clay on the exterior surface of the pot. A weavy ridge or a panel of high relief notches and many other relief designs are made for the purpose of decoration (Fig. 2 : 44). The technique of raising relief designs is known to

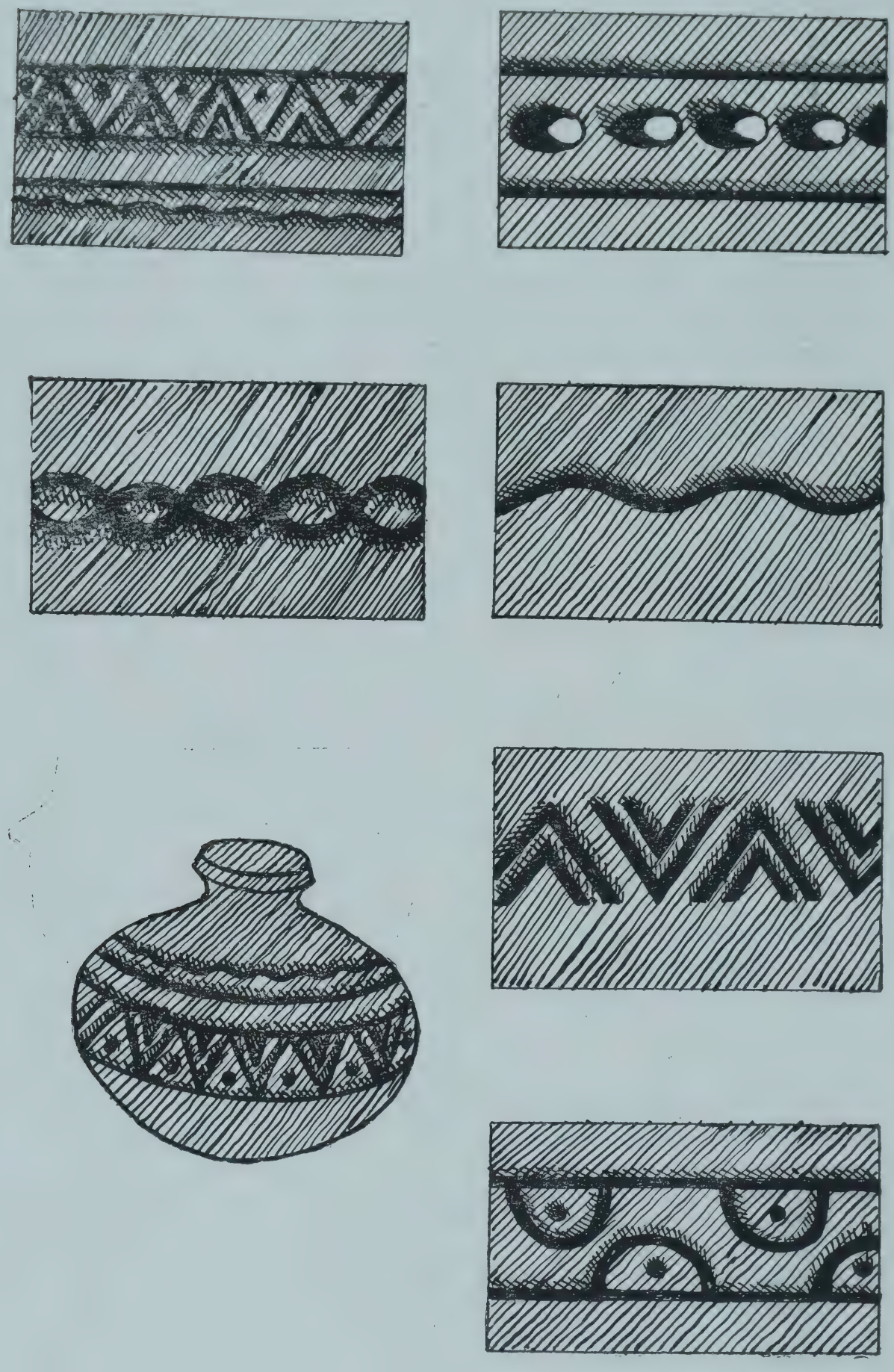

Fig 2:44 Relief designs

many potters of India, but it is very popular among the potters of the Punjab and Andhra Pradesh.

Marking

In parts of West Bengal and Assam, the potters use to give a trade mark on the pot indicating its place of manufacture and the name of the potter. Sometimes, the pots were also graded and numbered as one, two, etc., according to its quality. But this practice is now largely disappearing.

DRYING

After the pots have been treated with slip and decoration, the last stage of preparing the green pots remains, namely, drying. All the pots that are to be fired must be fully dried lest they will blow at the time of firing. The pots are spread over the ground under the direct rays of the sun, and at intervals they are turned for even drying. The fully dried pots are ready for biscuiting.

TECHNIQUES: HAND-MODELLED POTTERY

MATERIALS

The raw materials required in the manufacture of hand-modelled pottery are clay, temper and colour. The methods used in the collection and preparation of these materials are not different from those which have already been discussed in the second chapter for wheel-thrown pottery. Certain additional methods employed in the use of temper and mixing up of the clay may be mentioned here, because of their special treatment in hand-modelled pots.

Sand, ash, bran, chaff of both millet and paddy, coir, cattle-dung, horse-dung and elephant excrement are some of the tempering materials used in hand-modelled pottery. The use of a particular temper depends upon the type of ware to be made. Usually, for preparing large jars, particularly storing receptacles and a wide mouthed manger for feeding cattle, the clay needs to be tempered by fibrous materials, like bran, chaff or dung. But for small pots sufficiently cohesive clay, free from any impurities, is required. The use of tempering materials depends also upon the quality of clay. In Kaira in Gujarat, the clay used in the manufacture of storing receptacles by hand modelling, is tempered with 50% of chaff and allowed to sour for about a month. After souring, the clay is thoroughly kneaded by foot and hand till it attains the required consistency. During the process of kneading ash is also used frequently.

Usually, the clay is processed in the same way as in the case of wheel-thrown pottery. But a few methods prevalent among the potters who manufacture only hand-modelled pots may be referred here. The Urali potters of Wynad in Kerala, who manufacture only small pots, do not add any temper to the clay. The clay brought from the clay deposits which is greyish-whitish in colour is moistened with the required quantity of water and kneaded on a wooden board by hand. During this process, the potter picks out the gravels and other impurities. The clay is then beaten with a stone beater till it attains the required consistency. While beating, small impurities are once again eliminated by hand. And the clay is finally made into lumps of about the size of the pot to be prepared. In other parts of Kerala, the pulverized clay is cleaned by winnowing. A winnowing fan (*muram*) is used for tossing the clay in the wind. A mat is spread out on the ground to contain the tossed off clay. The tossing of clay is executed repeatedly and quickly. Consequently, the gravels fall

back into the winnowing fan while the fine stuff falls on the mat. The residue, which consists of coarse impurities, is thrown away, and finer clay is kept for use. There is another method of cleaning which is practised by the Telugu-speaking potters of Palghat and Kozhikode in Kerala. A handful of pulverized clay is lifted up in a strong breeze and permitted to sift through the fingers of the potter. The fine particles and dust are blown upon the mat spread out at a distance of 75 cm from the executor in the wind direction, while the coarser grains fall straight on the ground. The height to which the hands are lifted varies from 90 to 150 cm. The speed of the movement and the rapidity through the fingers, all depend upon the force of the wind. The Odan of Taichur in Kerala scrape with a kitchen knife to remove the coarse impurities. It is done also by either a bamboo strip or a sharp iron tool. The clean clay is tempered with sand or ash in required proportions. After mixing the clay and temper on a clean mat, a hollow is made at the centre of the lump and the required quantity of water is poured into it. When the clay is properly moistened, the entire lump is kneaded until the water has been completely absorbed. Small lumps are taken out for facility of work. Kneading takes about half an hour. The prepared clay is not kept for more than three days.

In the Mizo District in Assam, a particular kind of clay, called *bel-lei* is used for the manufacture of hand-modelled pots. There are quarries in the jungles where it is found. These sources are located when jungles are cleared for cultivation. The clay is hard and generally reddish-brown in colour. To the human tongue its taste is agreeable which, in Mizo, is called *hang*. Children sometimes eat pottery clay out of sheer playfulness without having any repulsive effect. Some animals, specially tigers, occasionally lick it. Thus, experienced hunters trace out their game by the sources of the clay. The lumps of clay brought from the deposit are pulverized on a rectangular wooden tray called *hlumsa-whthleng* which is otherwise used for feeding pigs. All grits are removed by hand, and water is sprinkled over for softening. At this stage, fine grit or grains, called *siak*, are mixed with the clay. In size, these should not be larger than sesame seeds. If suitable grains are not available, pulverized potsherds are mixed with the clay. The purpose of mixing these tempers is to make the pot strong. Though the proportion of temper and the clay varies according to the type of ware to be prepared, it is usually between $\frac{1}{8}$ to $\frac{1}{4}$. The clay is first kneaded by hand and then placed in a paddy husking mortar and pounded with a pestle. Pounding brings the clay to the required consistency. The prepared clay is kept on a piece of linen spread upon a winnowing tray for moulding.

INDIA

SCALE

MILES 100 0 100 200 300 MILES

K.M. 100 0 100 200 300 400 500 K.M.

72° 80° 88° 96°

36° 28° 20° 12°

JAMMU AND KASHMIR

H.P.

H. PRADESH

PUNJAB

RAJASTHAN

UTTAR PRADESH

BIHAR

SIKKIM

BHUTAN

N.E.F.A.

A.S.S.A.M.

NAGALAND

MANIPUR

TRIPURA

W. BENGAL

GUJARAT

MADHYA PRADESH

ORISSA

DIU (G.D.&D.)

DAMAN (G.D.&D.)

DNH.

MAHARASHTRA

ANDHRA

GOA

(GOA DAMAN AND DIU)

MYSORE

KERALA

MADRAS

LACCADIVE MINICOY & AMINDIVI IS. (INDIA)

ANDAMAN AND NICOBAR ISLANDS (INDIA)

REFERENCE

DISTRIBUTION OF HAND MODELLED POTTERY

SCOOPING . . . . . ●

PRESSING . . . . . ◔

MOULDING . . . . . ◐

STRIP METHOD

(*a*) ROLLING . . . . . ▲

(*b*) FLATTING . . . . . ◒

STATE BOUNDARY . . . . —·—·—·—

DISTRICT BOUNDARY . . . .

INTERNATIONAL BOUNDARY . . . . . —·—·—

DRAWN BY R. L. DEY. H.A.

REG. NO. 2979 E/61—537'67.

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Some of the hill potters of Almora in Uttar Pradesh mix soap-stone powder with the clay used in the manufacture of hand-modelled pots. The purpose of mixing stone powder is to strengthen the pot.

BUILDING

Different methods are employed in building the pots by hand. These methods may vary greatly in minor details from one region to another, but essentially they can be classified into four broad categories, viz. (1) Scooping, (2) Pressing, (3) Moulding, and (4) Strip-method. The first three methods are used in the manufacture of small and medium sized pots, but the last one is usually applied in the preparation of large pots.

Scooping Method

Under this technique the pots are modelled entirely by hand. The clay is scooped out from inside of the lump of clay and shaped by subsequent beating with a beater.

This method is practised by the Urali potters of Wynad in northern Kerala. The entire process of manufacture is done on a wooden board. The prepared lump of clay, placed on a wooden board, is roughly shaped by hand and then sized by beating with a light wooden beater, locally called *chattunky*. When the pot

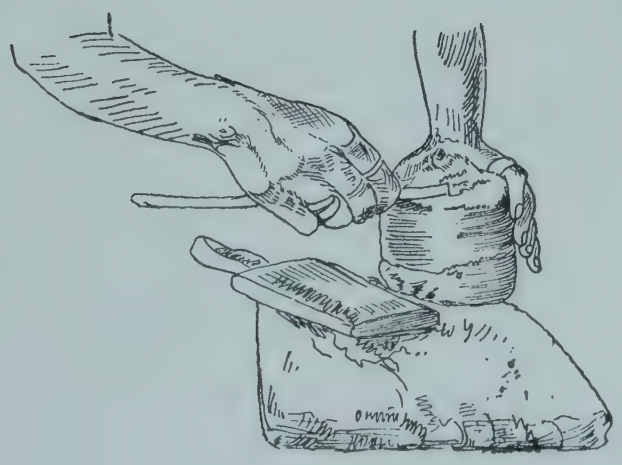

Fig 3 : 1 Shaving by a bamboo strip

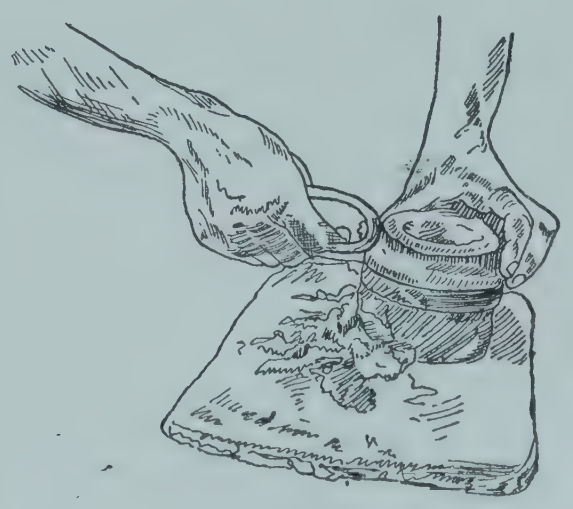

Fig 3 : 2 Scooping

attains its required rough shape, the rim is cut clear with a bamboo strip called *kebalie* (Fig. 3 : 1). The neck of the pot is made by scooping out the clay from just below the rim with the bamboo scraper (Figs. 3 : 2, 3 : 3). Thus, a solid mass of clay attains a rough shape of the pot. After forming the neck and rough shape of the pot, the potter scoops out the clay from inside with a thin bamboo

blade (Fig. 3 : 4). The beater is employed to shape the inner surface of the pot. Smooth strokes are given very gently and carefully,

Fig 3 : 3 Scooping

Fig 3 : 4 Scooping

Fig 3 : 5 Shaping the mouth of the pot

and thus the mouth of the pot is finished (Fig. 3 : 5). Beating continues for sometimes till the base and inside of the pot get the required thinness and the shape.

The decoration of the pot is completed before it is laid out in the sun to dry. The pot is generally incised with a blunt or pointed bamboo strip. The burnishing is done twice before drying. Firstly, it is done both inside and outside with a pebble called *mani kaa kallu* (Fig. 3 : 6). The pot is then kept for a day after moistening with a piece of rag, and the following day burnishing is repeated with the same pebble dipped in water. The pot is finally left for complete drying. It is either sunned for about a week or kept on the roof of the kitchen for drying after which the pot is ready for firing.

Fig 3 : 6 Burnishing with a pebble

Pressing Method

The pressing method is largely applied in preparing toys, figures, earthen lamps and bowls, in which a lump of clay is pressed in hand between thumb and fingers. Sometimes, the cooking pots and water jars are initially made by this method.

In Ganjam in Orissa, when *deep,* a small earthen lamp, is to be prepared, a ball of clay is pressed between the left palm and right thumb with a spiral movement until the desired shape is obtained. It is done usually by women. No tool is required.

In Mandla in Madhya Pradesh, cow-dung mixed with a small quantity of clay is pressed into a figure and fastened in a stick for holding. A sub-caste of the potters of Madhya Pradesh, called Bhondi, alone knows the technique of pressing. These potters are spread over in portions of Madhya Pradesh, Maharashtra and Gujarat and are considered to be a nomadic potter group. The wheel is never used by them. They prepare many beautiful animal and human figures by pressing. All the limbs of the figures are separately pressed and finally arranged and joined to get the required form.

In Kutch in Gujarat, many toys and animal figures are made by pressing. These figures may be made by a single lump of clay or more. For big sized figures, several chunks of clay are required for different limbs. The limbs are pressed between the two thumbs, fingers and the palms as and when required. They are joined together and formed into the required figure. The figures are sun dried, coloured and baked in fire.

In Gwalior in Madhya Pradesh, the Hatere potters make pots only by pressing. A lump of clay is placed on the palm, and a depression is made in the centre by the thumb. The depression is gradually widened by continuous skilled pressure of the fingers. The clay ball is slowly placed on the ground, and the fingers and the thumbs of the potter operate skilfully till the pot achieves the rough shape. The fingers and thumbs guide the pressure, and the clay rises by the spiral movement. The unfinished pot is then kept on a revolving base. The revolving base is made of a baked clay in shape of a wide mouthed pan, in the undersurface of which a lump of lac is affixed to make it pointed. It is locally known as *sikaria.* The *sikaria* is slowly turned on a boulder called *sil* by the left hand or the toe, while the pot kept over it is shaped by the right hand. The wall of the pot is thinned and smoothened by a lunate shaped stone piece called *loria,* about 15 cm long. After the walls of the pot have been raised up to the shoulder, the pot is allowed to harden. A lump of clay is rolled between the palms and set around the shoulder. The clay roll is pressed by fingers and finally shaped by a piece of wet cloth. A large pot is sometimes beaten between an anvil and a beater. The bottom of the pot is shaved by an iron scraper called *cholani.* The small pots are treated with the slip made of ochre and burnised by a piece of bamboo strip called *dara.* The pots are dried in the sun before firing.

Moulding Method

In moulding, the pots are built by the help of a mould.

In Kerala, a lump of prepared clay is placed on a wooden board and beaten with a stone anvil. Before the clay is placed, fire wood ash is sprinkled on the board to prevent sticking. A flat

Fig 3 : 7 Moulding

round case is thus made by beating. The process of making the clay cake is locally called *tattatikkal.* When the cake becomes sufficiently thin by beating, it is placed on the bottom of an inverted pot or *aachu* (mould) dressed by ash (Fig. 3 : 7), and light strokes are given with the beater to make it slightly convex. Light

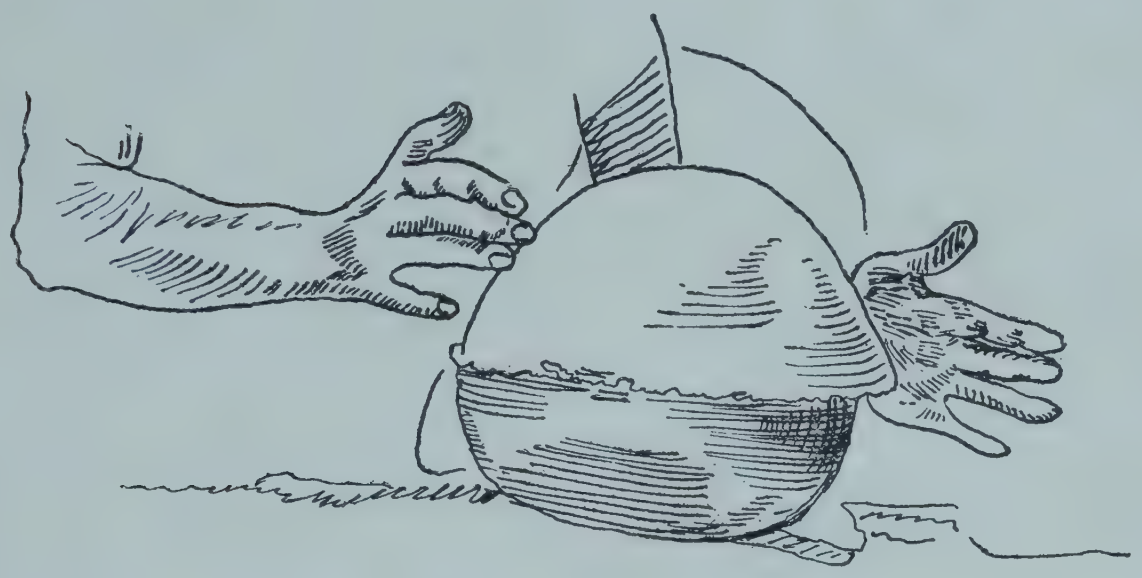

Fig 3 : 8 Moulding

beating continues until it is shaped into small inverted convex bowl. It is then removed and kept in the sun for drying. This process is called *chatti - pitikkal.* After burnishing, these clay bowls are again dried in the sun until they are ready for firing.

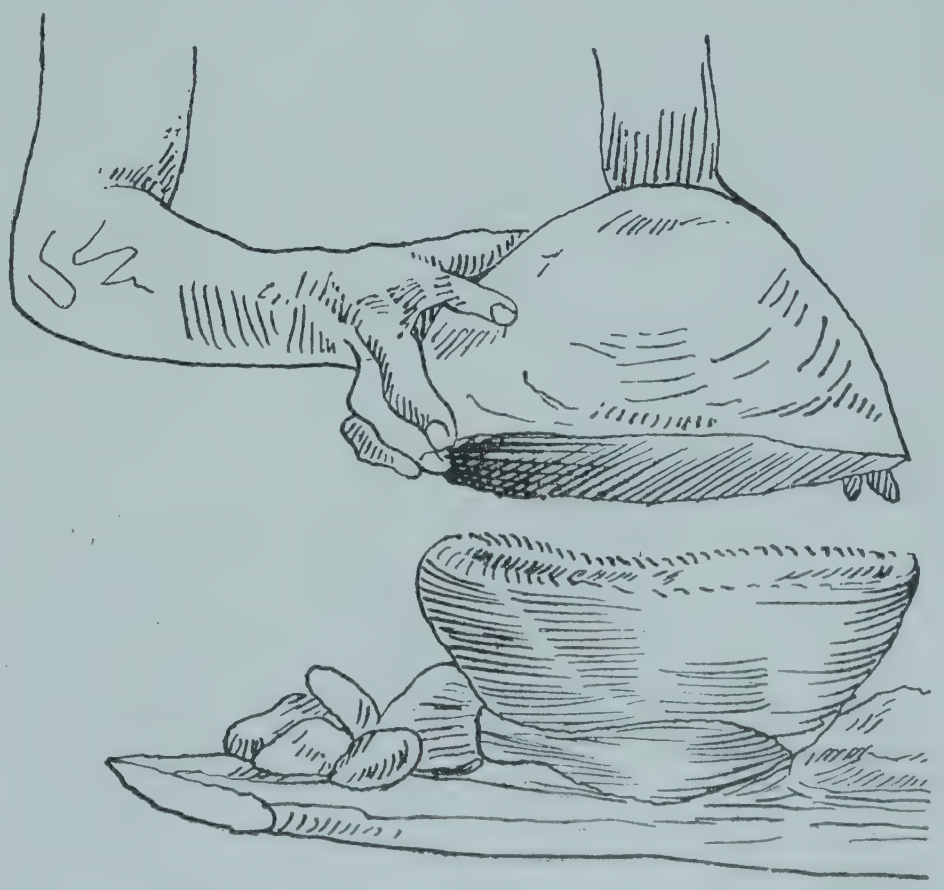

Fig 3 : 9 Superimposing the two halves

For water jars and bigger pots, two identical halves are essentially required, that is, they are made of two identical bowls. For this, a second bowl identical in size with the first is prepared on the mould (Fig. 3 : 8) to form the second half. Both the halves are kept in the sun for 30 to 40 minutes for a little hardening.

Then one is inverted and superimposed on the other so that the edges coincide (Figs. 3 : 9, 3 : 10). The two halves are joined by smearing clay at the junction. Thus, a hollow ball of clay is prepared without any orifice. A small hole is cut at its centre from the top with an iron knife, or the centre of the hollow is pressed firmly with the thumb of the right hand until a hole about 5 to 6 cm is made. The knife is used for opening the mouth in all the districts in Kerala where pots are moulded, excepting in Eranakulam where it is done by hand. For building the mouth,

Fig 3 : 10 Superimposing the two halves

Fig 3 : 11 Forming the rim

the potter takes a thin roll of clay and fits it on the edge of the hole. The whole manipulation is done with the right hand, and the vessel is rotated anti-clockwise by the left hand. Thus, the rim of the pot is made with a thin roll of clay and is then shaped and flattened with a wet cloth to the required shape between the thumb and finger of the right hand (Fig. 3 : 11). The pot is moistened and allowed to dry in the sun for another half an hour. When it is leather hard, the pot is beaten with a beater for ten to fifteen minutes to converge the two halves on the junction

Fig 3 : 12 Beating

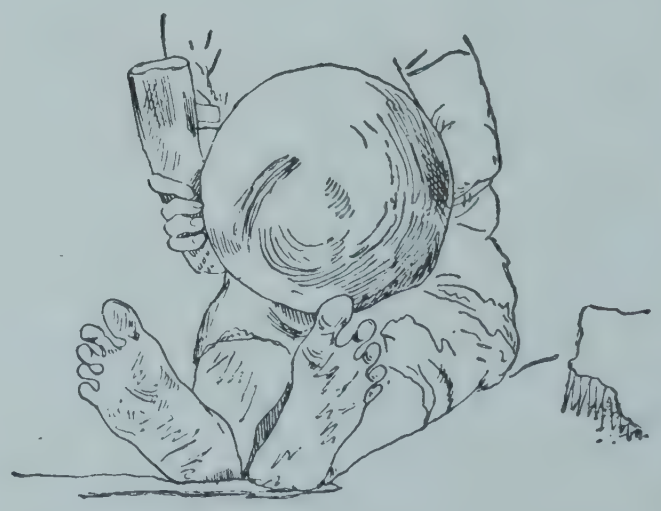

Fig 3 ; 13 Beating

(Figs. 3 : 12 and 3 : 13). After drying in the shade for an hour, the pot is again beaten for final shaping and smoothening.

The exterior surface of the pot is scraped and burnished with a coconut shell or a pebble. The final burnishing is done generally after slip has been applied. A very thin layer of red slip is applied to the surface of the pot to produce a sort of smoothness and uniformity in colour. The slip is an emulsion of coloured clay in water and is applied by means of a small piece of cloth. One end of the cloth is held between the thumb and first two fingers of the right hand. This end of the cloth acts as a wide paint brush which is manipulated with an easy, backward and forward motion, parallel to the rim. The pots rest on an old potsherd and are rotated anti-clockwise while the slip is applied. The treatment after application depends upon the kind of slip used. Some slips are merely wiped vigorously with a cloth, and in some cases the pot is burnished with pebbles. The slip is applied on all the moulded pots in the districts of Palghat, Kozhikode, Ernakulam, Trivandrum, and Kottayam. But in Trichur, no slip is applied on the moulded pots.

The potters of Kulu Valley in the Punjab and Mahasu in Himachal Pradesh manufacture pots by the same moulding

Fig 3 : 14 Making a hole at the centre of clay disk

Fig 3 : 15 Fixing the neck

method as described above. Since these potters prepare a long-necked pot, a slight variation occurs in the preparation of neck. First of all a lump of clay is taken in hand and flattened into a thick disk of the intended dimension of the neck. A hole is made with the index finger at the centre of the disk (Fig. 3 : 14), and is gradually widened between the thumb and fingers. Consequently, the clay rises and takes the rough shape of the neck. The neck is fitted with the hole cut on the hollow body of the pot made in two halves (Figs. 3 : 15, 3 : 16). Joining, shaping

and widening the neck is done with a piece of cloth in the manner described earlier. The Kulu potters, however, distinguish themselves from Kerala potters by their use of a revolving base. They use a concave wooden disk which is turned on a

Fig 3 : 16 Forming the neck

Fig 3 : 17 Beating

flat piece of stone. Beating, joining and smoothening the pot are done on this wooden disk which is locally called *kosa* (Figs. 3 : 17, 3 : 18, 3 : 19). The *kosa* is rotated anti-clockise with the left hand while the pot is shaped with the right hand.

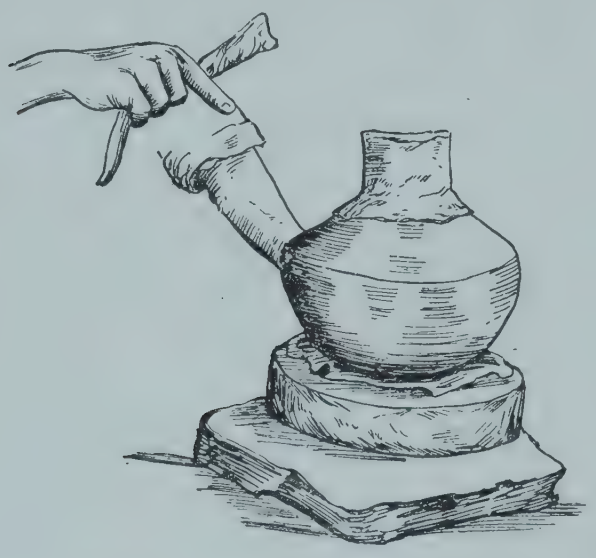

Fig 3 : 18 Joining the neck

Fig 3 : 19 Smoothening

In Darbhanga and Champaran in Bihar, when a potter has to prepare a *nand* (a wide mouthed manger for feeding cattle), he uses a pit-mould. A lump of clay is flattened into a thick disk of the required size and placed in a shallow pit dressed by sand or ash. When beaten by a baked clay anvil, the flat disk takes the shape of the pit. After achieving the spherical shape, the pot is taken out of the pit and allowed to harden. When it is leather hard, it is beaten between an anvil and a beater to the required thinness. After beating, the pot is dried in the sun and

later on treated with the slip. In Azamgarh in Uttar Pradesh, the same type of *nand* is prepared by an oval shaped clay mould instead of a mould pit. The projected mould turns out the pot exactly as the mould pit, and obviously there is no functional difference between the two moulds. This type of oval shaped mould is also found in West Bengal.

The polyandrous potters of Jaunsar Bawar in Uttar Pradesh mould their pots in a different way. A mould is prepared in a pit exactly in the same way as a *nand* is prepared in Darbhanga. Moulds of various sizes are made and baked. These hollow bowl-shaped moulds are used for preparing different types of pots. A lump of clay is placed on the mould and pressed by gentle strokes of the anvil. Gradually, the walls rise up to the shoulder of the pot, on which a roll of clay is attached, and by the manipulation of thumb and fingers the neck takes its form. The entire pot excepting the rim is given a smooth beating by a beater and an anvil. The pot is decorated by stamping with a horn-seal.

In coastal Andhra Pradesh, in Chingelput, South Arcot and Coimbator in Madras and in Calicut of Kerala, earthen saucers and flat lids are prepared by moulding clay in between two moulds of different sizes. The form of the moulds are like saucers. A ball of clay is flattened on a wooden plank by beating with a flat-based anvil. When it spreads out, it is placed on the ash-dressed concave side of the larger mould and some amount of fine ash is sprinkled upon it. The smaller mould is placed on the clay keeping its concave side upward. The upper mould is pressed against the lower mould containing clay and now both the moulds, with clay in between, are kept in an inverted position ; as a result, the upper mould remains below and the lower above it. Again the upper mould is pressed against the lower with clay in between them. The clay being thus pressed obtains a saucer shape. Its brim is trimmed with a piece of wet cloth. This technique appears to have evolved from the pressing method, since the clay is pressed in a mould.

In several places in northern India, particularly in the Punjab and Uttar Pradesh, a pair of ornamental mould-pans are employed for preparing long necked water jars called *surahis*. A lump of clay is flattened into a disk (Figs. 3 : 20, 3 : 21, 3 : 22, 3 : 23) and pressed in one of the ornamental mould-pans by an anvil (Fig. 3 : 24). The excess clay which rises above the brim of the mould-pan is cut by a piece of thread or a wire (Fig. 3 : 25). Thus, the mould pan envelops a complete half of the pot. Another half is

Fig 3 : 20 Flattening the clay lump by hand

Fig 3 : 21 Flattening the clay lump by an anvil

Fig 3 : 22 Flattening the clay lump in a mould

Fig 3 : 23 Cutting the over-spread clay walls

Fig 3 : 24 Pressing in an ornamental mould

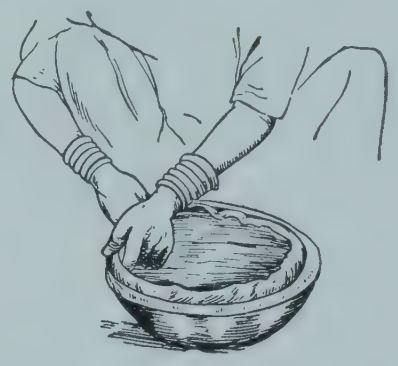

Fig 3 : 25 Cutting the over-spread clay walls

Fig 3 : 26 Joining together the two halves

Fig 3 : 27 A circular hole in the upper mould

prepared in the same way and later on joined together (Fig. 3 : 26). The piece of mould-pan which moulds the upper part of the water jar is provided with a circular hole at its centre (Fig. 3 : 27) and contains ornamental impression. During moulding, the circular hole enables the potter to cut a hole of the same dimension into the body of the pot where later on a wheel-thrown neck is netted together. Thus, the *surahi* is prepared at least in three parts

of which body is moulded and the neck is thrown on the wheel. The stand, the ornamental spout, or any other accessories may be annexed with the pot, if desired.

Clay toys and figures are mostly prepared in mould. According to the requirements, the mould may be prepared in several parts, and in each mould piece a well levigated clay is firmly pressed to get the intended shape and impression. All the moulded parts are appropriately joined together by clay paste. After receiving the desired form the object is dried, baked and coloured. This type of moulding toys and ornamental figures is widely prevalent in the country, but the potters of Krishnanagar in West Bengal, Chunar in Uttar Pradesh, Udaipur in Rajasthan, Patan in Gujarat, South Arcot in Madras, Dharwar in Mysore, Puri and Cuttack in Orissa, and Bicholem in Goa are famous for their art.

In parts of West Bengal, Bihar and Orissa when a large image is to be made, the potter first of all prepares a frame-work by paddy straw. The skeleton of the image is finally daubed with clay, and head, usually moulded, is joined with the body. Other limbs too are fitted into the body. The use of a straw frame-work is to prevent sagging, and obviously it appears to have originated from pressing. The use of mould for preparing the head of the image, however, combines the two techniques of pressing and moulding.

Strip-Method

Making of pots by strips of clay is known as strip method. In this method each circuit of pot is formed by a separate length of clay. According to the form of the strips of clay, this method may be classified into two categories: (a) Rolling and (b) Flatting.

(a) Rolling

In this method each circuit of pot is built up by separate rolls of clay ranged one upon another and pressed into union.

In Warangal in Andhra Pradesh, usually large storing receptacles, and water jars are prepared by rolling strips of clay (Figs. 3 : 28, 3 : 29, 3 : 30, 3 : 31, 3 : 32). First of all, the potter flattens a disk from the clay between his two palms. The disk serves as the base upon which walls are constructed. A lump of clay is rolled out on a wooden board into a sausage like fillet and added around the rim of the base. After encircling the base, the fillet is squeezed up. Another fillet of clay is set upon it and pressed with the fingers. The work thus proceeds by ranging one fillet

of clay after another until the required size of the pot is achieved. The size of the fillet depends upon the size of the pot to be prepared. Generally, thicker rolls (about 5 to 8 cm thick) are used for very big pots. Long or small fillet may be added according to need. The potter walks round the pot for affixing the fillets of

Fig 3 : 28 Storing receptacles built by strips of clay

Fig 3 : 29 Lower portion of the storing receptacle

Fig 3 : 30 Storing receptacle in the process of making

Fig 3 : 31 Storing receptacles with neck

Fig 3 : 32 Storing receptacle with relief design

clay in an anti-clockwise direction. The walls of the pot are beaten between a beater and an anvil when they are a little dry. During the process of beating, the anvil and beater are moistened frequently with a wet cloth. The potter takes four to five pots at a time into operation. While he works on one pot and adds one or two fillets around the growing walls, he allows the other pots to dry. Thus rolling, squeezing or smearing the walls is resumed on the pots one after another. This brief drying helps the growing walls of the pot to remain firm when additional fillets are added. After building the walls, the pot is finally beaten to the required thinness. A small fillet of clay, which may make the intended size of the neck, is attached on the walls by squeezing and pressing with fingers. The neck is finally shaped by a piece of

wet cloth compressing round the fillet of clay. High relief designs are sometimes made on the walls before they are well dried in the sun. Thus, a long jar, about 1.60 metre high, with a flat base is prepared by this method.

In Mandya in Mysore, when a convex base is to be prepared, first of all the flattened disk is modelled by hand into the shape of a convex-bowl (Fig. 3 : 33), and when dried up, the fillets of clay are attached to the brim (Fig. 3 : 34). The process of raising the walls by a series of rings of clay remains the same as described above (Figs. 3 : 35, 3 : 36, 3 : 37, 3 : 38).

Fig 3 : 33 Preparing pot with fillets of clay

Fig 3 : 34 Attaching the fillets of clay

Fig 3 : 35 Raising the walls by series of rings of clays

Fig 3 : 36 Forming the neck

Fig 3 : 37 Smoothening the pot

The Hira potters of Assam make pots by the strip-method in which rolls of clay are used. A circular disk which serves as the base of the pot is prepared by pressing the clay between the palms in the same way as bread is prepared by hand. The clay disk is kept on the bamboo mat. About 10 to 40 such disks are prepared at a time so that the potter may work on them simulteneously. The size of the disks depends upon the intended size of the pot. After the disks have been allowed to dry up overnight, they are sponged by a piece of wet cloth and transferred to *dansil* (a piece of stone) placed on a roll of straw. Fillets of clay called *nari* or *lari* are rolled in the palms. One fillet of clay is affixed at the brim of the disk and

pressed by fingers. The other disks are also treated in the same way and this allows the rolled fillet to harden in the meanwhile. Thus fillets of clay are laid one after another till the pot attains the intended height. In course of building, the walls are thinned and smoothened by the hands, one hand is kept inside the pot with the palm pressed against the walls, and another hand smoothing the walls from outside. Sometimes pots are beaten between an anvil and a beater. The pot is rotated on the *dansil* while the process of thinning and smoothening continues. The neck is prepared in the last by affixing a roll of clay above the shoulder of the pot and pressed with the fingers. With a wet piece of cloth the neck is shaped between the thumb and fingers while the pot is slowly turned. After making the neck, the entire pot is sponged once more by a wet piece of cloth and rubbed by hand. Slip is applied only on the upper part of the pot. Large pots may be decorated by designs in high relief. One or two thin rolls of clay are affixed just below the neck of the pot and designs are made by pressing with the finger which look like ripple marks.

Fig 3 : 38 Stamping

(b) Flatting

In this method each circuit of pot is built up by separate bands of clay flattened before adding on the walls of the pot and ranged one upon another and pressed into union.

In Chanda in Maharashtra, when a storing receptacle called *ranjan* is to be prepared, a flat disk, locally called *bur,* is first prepared by clay tempered with horse dung. The flat disk which forms the base of the jar is placed on the ground dressed by ash. A lump of clay is rolled and flattened into a long band of clay called *lori* and added around the edge of the base. Thus, series of bands are raised one after another allowing an intervening pause between the two bands to dry. Sometimes, when the band only half-long enough to encircle the base is used, the potter makes another small band of clay to complete the circuit. All the bands of clay are flattened separately on the ground before they are fixed to the wall of the pot. The wall of the pot is enlarged and thinned by a beater and an anvil. The sutures formed by the addition of bands of clay are cleared off by beating.

In Almora, small pots, such as water jars, are made with flat bottom. The bottom is prepared by flattening a lump of clay and placed on a revolving base made of clay and a kind of grass locally called *babla*. The revolving base is called *sancha*. It has a pointed base which rests and revolves on a slab of stone. A roll of clay flattened into a long and wide slab is fixed around the edge of the clay disk kept on the revolving base. Only one slab is sufficient to complete the wall of the pot. The slab of clay is thinned, enlarged and shaped by beating between an anvil and a beater. A small band of clay is added on the shoulder of the pot which subsequently forms the neck by the manipulation of the thumb and the fingers. The neck and the shoulder are smoothened by a piece of cloth.

Fig 3 : 39 Beating

Similar technique of modelling water jars by slabs of clay has been found in the Kashmir Valley. But unlike the Almora potters, the potters of Kashmir do not use a revolving base. They use a high-stand on which the pot is beaten and enlarged, while the potter walks around in an anti-clockwise direction (Fig. 3 : 39).

In Akola and Poona in Maharashtra, a revolving base called *suttal* is used for making wide mouthed bowl by this method. A lump of clay flattened into a disk is kept on the *suttal*. A band of clay is attached to this disk (Fig. 3 : 40) and while the *suttal* is turned slowly by the left hand (Fig. 3 : 41) the wall is raised and

Fig 3 : 40 Fixing the bands of clay on a revolving base

Fig 3 : 41 Turning the revolving base and shaping the pot

Fig 3 : 42 Building the walls

shaped by the right hand (Figs. 3 : 42, 3 : 43, 3 : 44, 3 : 45). After giving the required shape, the pot is removed from the *suttal* and allowed to dry for a while in the sun. When it is leather hard the bottom of the pot is shaved from outside with a bamboo strip or a kitchen knife (Fig. 3 : 46).

Fig 3 : 43 Thinning the walls

In the Mizo District in Assam, a spherical pot having round base and constricted and rimless neck, locally called *bel,* is made by the strip-method. Initially, the base is modelled by hand and then flattened bands of clay are joined around one above the other to build up the form. The finished shape is given by beating between an anvil and a beater. During the operation, the pot is placed on a loose pile of linen. Once the final shape has been given, no slip is applied or polishing done. While beating the pot, the wooden beater is wrapped with thick cotton threads, and consequently the impressions of the thread remain on the outer surface of the pot which present a pleasing design.

Fig 3 : 44 Widening the mouth

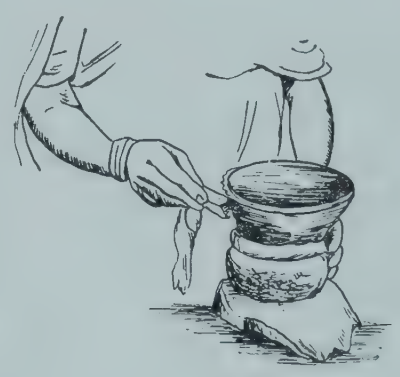

Fig 3 : 45 Smoothening

Fig 3 : 46 Shaving the bottom of the pot

In Balasore, Cuttack and Puri in Orissa and in Madurai, Ramanathpuram and Kannyakumari in Madras, a large pot with wide mouth called *jahala* and *atal-kannal* is made by this method. This is specially prepared for storing or soaking grains in water. The manufacture is a little complicated, and women potters do not undertake its preparation. A flat circular base is prepared on plank called *garhapatta* in Orissa and *palgai* in Tamil. A flat strip of clay, 7 to 10 cm in width and 1 to 2 cm in thickness is formed

into a funnel-shaped ring—the diameter of the under surface of the ring is made identical with that of the base, whereas the diameter of the upper surface is made comparatively larger. The ring is placed on the base and are conjoined with it by pressing the joints with the thumb and fingers. Rings formed in the similar fashion are placed one upon the other up to a height of 35 cm to 1.5 metre. When one strip of the wall hardens, another strip is joined upon it. While working on it, the potter moves around the pot anti-clockwise. If the wall sags while making, the potter may use small sticks as supports against the wall. Upon the top a separately prepared brim is fixed to complete the pot. The sutures formed between two strips by joining them are effaced by beating with two anvils. An anvil and a beater are used at the time of smoothening the walls of the pot.

FIRING

The final stage in the preparation of hand-modelled pot is firing. There is no technical difference between the firing of hand modelled pots and wheel-thrown pots, and, therefore, it will be dealt with separately for both the types.

DISTRIBUTION

The hand-modelled pottery has often been discredited for its primitiveness and also the irksome nature of the work. Throwing on the wheel has been considered to be easier and technically efficient in the manufacture of pottery. But everything cannot be formed on the wheel. Very big pots cannot be thrown, and some intricate forms also cannot be achieved on the wheel. Much of the finest pottery of the past has been made without the use of wheel. It has been observed that the technique of hand-modelling persists along with the technique of throwing on the wheel. In the mainland of the country, it is only among the Urali Kurumbars of Kerala, Hatheri and Bhondi potters of Madhya Pradesh, Handakia potters of Almora, Kolta potters of Jaunsar, and Hira potters of Assam that only the technique of hand-modelling is practised. Instances recorded from Kulu Valley and Mahasu are individual cases, and no group as such is engaged in the making of hand-modelled pots. Elsewhere in the country, we find the potters adopting the technique of hand-modelling side by side with the throwing.

In the above description of the various methods of hand-modelling, we have found the instances of 'revolving base' employed in the manufacture of hand-modelled pottery. But it is only for the convenience of the work that such a revolving base is used. A

revolving base, however, cannot deliver the specific function of transmitting the centrifugal force, generated by the rotary motion of the wheel, to the lump of clay which is thrown at the centre of the wheel.

The four methods described in the preceding pages may require some further explanations of their nomenclature and general distribution in India. When the pot is hollowed and shaped by scooping out a solid lump of clay, the term 'scooping method' may be applied to this technique. The term 'pinching' may also be used alternatively. The scooping method appears to be unique and one of the most primitive methods of manufacture. It has been reported only from Wynad in north Kerala where the Urali potters employ this method. The Uralis are a Canarese-speaking group of smiths, wood-workers, agriculturists and potters. They practice hoe-cultivation, and those who manufacture pots are called Urali Kurumbars. The entire process of manufacture is done by women. They make only small pots, and the people of Wynad believe that things cook better in Urali pots than in wheel-made ones.

Another elementary method of building the pot by pressing a lump of clay in to the desired form may be termed as 'pressing method'. The very act of modelling justifies the term. The pressing method which is believed to be historically the earliest method of shaping a pot is now being employed in modern time in ceramic art known as 'press figures'. One Des Raj Kapoor of Jammu makes highly artistic press figures from red clay. Several clay figures in the Mohenjo-Daro and Harappa style are being prepared by press method. They have taken the position in modern art in ceramics. Though this technique is widely spread over in rural India, it is only in Madhya Pradesh that the pots are manufactured by this method ; elsewhere only toys and earthen lamps are made. The Bhondi potters who have been found in Osmanabad and Nander, and the Jeeneger's of Mandla in Madhya Pradesh, prepare toys only by the pressing method. They do not prepare any other article. Elsewhere the potters who manufacture toys by pressing also employ the wheel for making pots. In Madhya Pradesh, there is a section of potters who manufacture pots only by the pressing method. These potters are distinguished from those who throw pots on the wheel. They are called *Hatere* which means 'he who modells pot by hand'. Sometimes they are known as *Kurere*, because of the *Kuro* (a revolving base) on which they work. The *Hatere* or *Kurere* potters, though initially model their pots by pressing, they take the help of beater and anvil and also a revolving base in course of preparation.

The modelling of pot by skilful pressing of clay in a biscuit mould may reasonably be called the 'moulding method'. The moulding which appears to have originated from 'pressing' may be employed to make many complex shapes which cannot be formed on the wheel. The technique of moulding has been greatly improved in the recent years. Hand-modelled biscuit moulds have been replaced by plaster of paris moulds in ceramic factories. But the village potters still use the hand modelled biscuit moulds.

Under the technique of moulding, we find three distinct categories of pottery : (i) figures, (ii) big jars and (iii) cooking and water pots. The moulding technique applied in the manufacture of figures has been reported from various places in the country. Moulding of big jars is comparatively a crude method which we find in many places in Bihar and Uttar Pradesh. Moulding of cooking utensils and simple water jars, as practised by the potters of Kerala, and Kulu Valley appears to be equally crude and primitive. But the moulding of ornamental water jars, which has been found in several places in northern India appears to be an improvement in the technique of making ornamental pots.

The most widely prevalent technique in the manufacture of hand-modelled pots is the 'strip-method' in which pots are made by strips or slabs of clay. The term 'slab work' may also be used for this technique. As described earlier, there are two distinct methods of preparing the strips of clay which have been termed 'rolling' and 'flatting.' Under this method, when the pots are built by rolls of clay, people mistake it as 'coiling technique'. But there is a remarkable technological difference between 'coiling' and 'strip' method. In a 'coiling' method, the rolls of clay are spirally turned to form the walls of the pot. When one roll of clay is used up, another is joined to its end and the work continues till the desired height of the pot is achieved. A good method of joining two rolls has often been recommended to slit one end and link tail to mouth, as it were. Coiling technique is very much popular in 'basketry'. So far the joining of rolls is concerned, the 'strip' method is basically different from 'coiling'. Unlike 'coiling', in a 'strip-method' each circuit of pot is formed by a separate roll or flattened slab of clay. As rolls of clay have been largely associated with the coiling technique, one is apt to be mistaken when such rolls are used in the strip method. In the finished stage, it is not possible to know whether the pots have been made by 'coiling' or the 'strip' method, as in both the cases the walls of the pot are beaten and the sutures are removed. In the surveyed mainland of India, not a single example of coiling technique has been found by us.

Some anthropologists have reported the coiling technique from the Hira potters of Assam ; but as a matter of fact the Hira potters practise only strip-method in which only rolls of clay are used. The largest concentration of 'rolling' is in southern India, and also in Orissa and Assam, but it is conspicuously absent in northern India where moulding is widely distributed. The 'flatting' method is sporadically distributed over Maharashtra, Gujarat, Madras, and Orissa. It has also been reported from Kashmir, Almora and Champaran and Darbhanga.

It is generally felt that the hand-modelling work is primarily a woman's job. But, in India, we find that it is only among the Urali potters of Kerala and Hira potters of Assam that modelling of pots by hand is exclusively women's job, while the men among them do not make any pot either with hand or wheel. Elsewhere in the country both men and women model pots by hand. In Madhya Pradesh, the women are tabooed to the use of beater and anvil, but they are allowed to model such pots by hand which do not require the use of these tools. In general, it has been observed that big jars are usually prepared by men, and comparatively small pots are made by women.

The technique of hand-modelling is widely distributed over southern India. In western India, this technique appears to be comparatively uncommon. The potters of western India have shown a greater skill in throwing. They throw even small figures and big jars, and to them the manipulation of clay off the wheel is really a tiresome job.

TECHNIQUES OF FIRING

TECHNIQUES

Firing involves a series of problems of complexity which can be fully explained by a ceramic chemist or a physicist. Since the object of the present work is to examine various technical traditions in pottery manufacture in India, we will confine ourselves mainly to be structural aspect of firing.

The methods of firing practised by the peasant potters in India can broadly be classified into three types, viz. (1) Firing in Open, (2) Firing in an Oven, and (3) Firing in a Kiln. In each major type occur a number of local variations, which further can be classified into sub-types. While discussing each type of firing, reference will be made to its sub-types and other minor variations.

FIRING IN OPEN

This method can be defined as firing of pots piled up on a flat piece of ground, or on a raised platform or in a dug hollow with fuel below, among and/or above them.

Firing in open has a wide distribution in India. It is largely practised by the potters of Himachal Pradesh, the Punjab, Uttar Pradesh, Rajasthan, Gujarat, Madhya Pradesh, Bihar, parts of Assam, Orissa and Andhra Pradesh, and also in Madras State. It is not unknown even in areas where other methods of firing are in vogue. And, therefore, sporadic distribution of this method of firing may be found all over the country.

As it will appear from the following description, there are regional variations in this method of firing, mainly on the basis of piling and the act of igniting. Considering these two techniques, we can classify the method of 'Firing in Open' into three sub-types: (1) Open-firing with an apical fire channel, (2) Open-firing with horizontal fire channels and (3) Open-firing without any fire channel.

Open Firing with Apical Fire Channel

First of all, a symmetrical bed consisting of strips of wood, dried cattle-dung cakes and vegetable matters is prepared in a circular plan on a flat ground. Pots are piled up circular with their mouths inverted. The piling is done in a manner so as to keep big pots close to the centre and small ones at the periphery, and this order continues till they are piled up in three to five layers or as high as 1.50 metres to 1.80 metres according to the

number and the size of the pots. The pile finally gets the form of a dome. While piling up the pots in a circular fashion, a hollow is left at the centre which forms a vertical channel that opens at the top of the dome (Fig. 4:1). The fuel placed among and

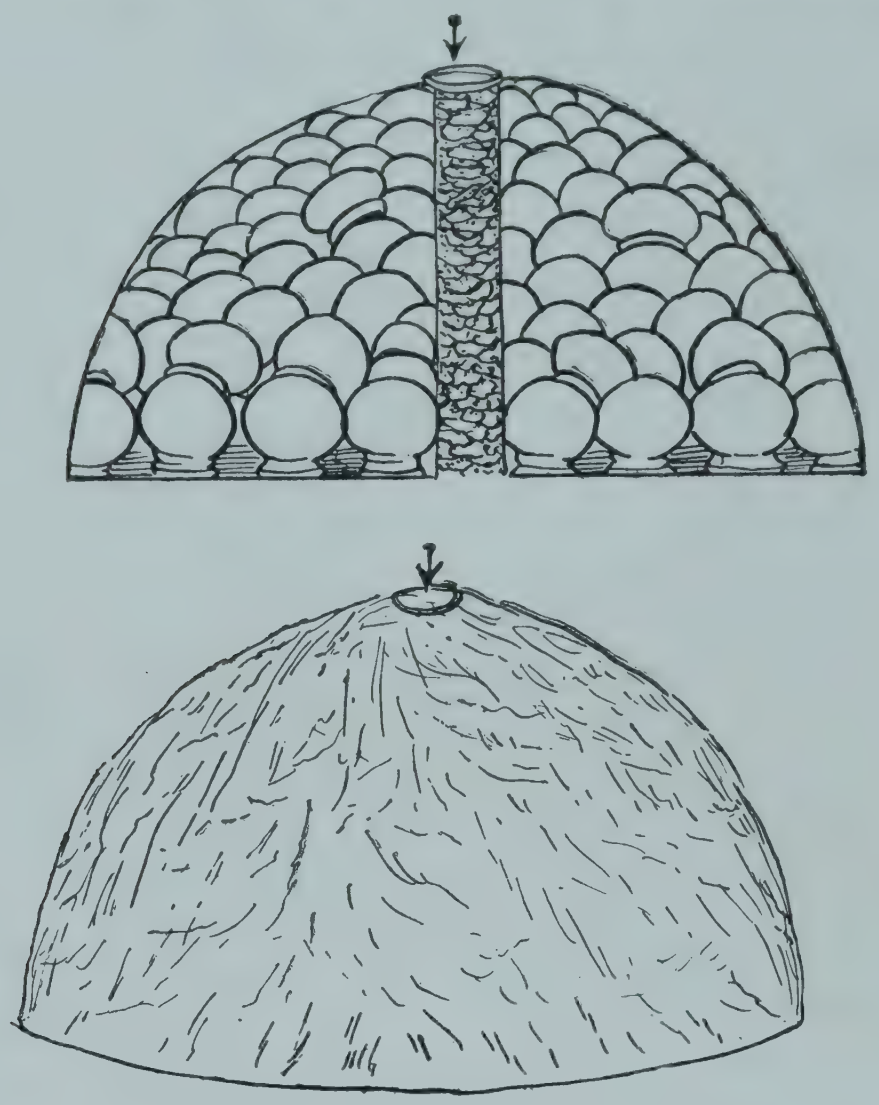

Fig 4 : 1 Circular plan of a pile with apical channel

between the layers of pots connects this apical shaft. The entire pile is covered with withered grass or husks and finally plastered with mud. Only the top of the shaft is left unplastered through which fire is kindled.

When fuel in the apical channel is ignited, it gradually spreads into all corners of pile. Sometimes, after ignition, the top hole is covered by a broken pot, and a few hours later when it glows red, several holes are deftly made on the lower part of the pile for proper emanation of the smoke. The duration of firing and cooling varies between three to ten days.

This method of firing is widely prevalent in Uttar Pradesh, the Punjab, and Himachal Pradesh. Sporadic distribution of this method has been found in Goalpara in Assam, Darbhanga and Champaran in Bihar, and Bhilsa, Gwalior, Sidhi, Surguja and Bilaspur in Madhya Pradesh.

INDIA

SCALE

MILES 100 0 100 200 300 MILES

K.M. 100 0 100 200 300 400 500 K.M.

72° 80° 88° 96°

36° 28° 20° 12°

JAMMU AND KASHMIR

H.P.

HIPRADESH

PUNJAB

RAJASTHAN

UTTAR PRADESH

BIHAR

SIKKIM

BHUTAN

N. E. F. A.

ASSAM

NAGALAND

MANIPUR

TRIPURA

W. BENGAL

GUJARAT

MADHYA PRADESH

ORISSA

DIU (G.D.&D.)

DAMAN (G.D.&D.)

MAHARASHTRA

ANDHRA

GOA (GOA DAMAN AND DIU)

MYSORE

KERALA

MADRAS

LACCADIVE MINICOY & AMINDIVE IS. (INDIA)

ANDAMAN AND NICOBAR ISLANDS (INDIA)

REFERENCE

TECHNIQUES OF FIRING

OPEN FIRING.....

OVEN FIRING.....

KILN FIRING.....

STATE BOUNDARY.....

DISTRICT BOUNDARY.....

INTERNATIONAL BOUNDARY.....

DRAWN BY R.C. DEY. H.A.

REG. NO. 2979 E/61—537 '67.

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A variant of this method of firing may be mentioned here, in which the pots are piled up rectilinearly instead of circularly. The pots are arranged rectilinearly in four to five layers with fuel below and above them. Since the pots are piled up in a dug hollow, the average height of the pile does not exceed one metre. The entire pile looks like a trapezium bounded by four straight lines in which the proximal width of the pile is shorter than the distal width (Fig. 4 : 2). In addition to the top hole through which fire is kindled, three to five air ducts are provided in the pile which is thickly covered by sand or wet-ash. The complete process of firing takes seven to ten days' time. The arrangement of fuel and the act of igniting are the same as we have seen in the case of circular pile. This type of firing under trapezium plan has been found only in Darbhanga in Bihar, Jullundur and Kangra in the Punjab, and Mahasu in Himachal Pradesh.

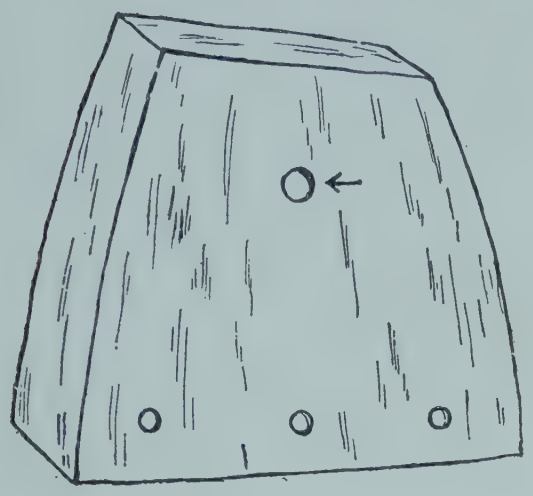


Fig 4 : 2
Trapizium plan of a pile with apical channel

Open Firing with Horizontal Fire Channel

Pots are piled up in concentric circles with their mouths inverted upon a bed of fuel, which consists of strips of wood, cattle-dung cakes and other withered vegetable matters. In the bottom layer, the pots are placed in radial rows within the circular base of the pile with a narrow passage between every two rows. The space between the two rows of pots functions as a fire channel which runs straight from one point of the circle to the opposite (Fig. 4 : 3). On either side of the fire channels stoke-

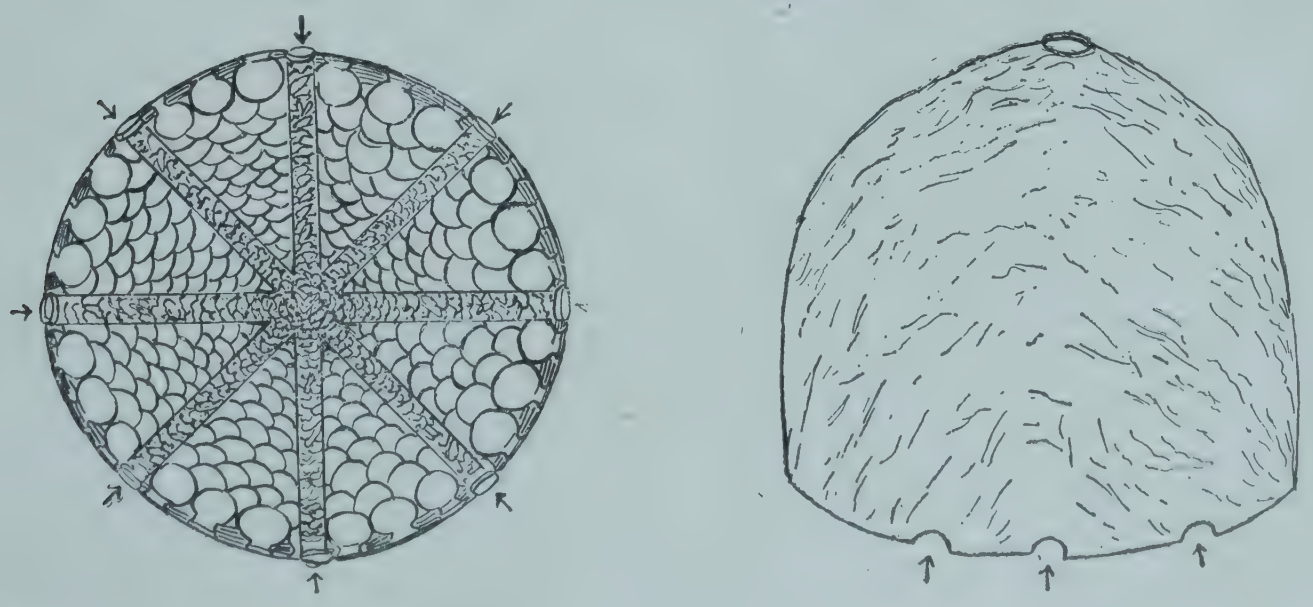


Fig 4 : 3 Circular plan of a pile with horizontal channels and apical fire-mouth

holes may be prepared by old and worn out pots, or by a baked clay frame, specially meant for this purpose. Piling is done in layers with fuel between each two layers and sometimes also among the pots. Big pots are arranged in the bottom layer and small pots above them. Pots are piled up usually in three to five layers. The entire pile, excepting the stoke-holes, is meticulously covered with potsherds. It is further covered with ash or sandy clay with a thickness of 6 cm to 10 cm to protect the pots against draughts of cold air and also to conserve uniform heat.

Fire is kindled through all the stoke-holes simultaneously by one or two persons. The slow fire made in the beginning is gradually developed, and when pushed forward with a poker, the fire creeps in smoothly due to good circulation of air inside. Slow firing continues for an hour or two, and intense firing goes on for several hours till the potter is ensured of proper combustion of fuel and even baking of the pots piled therein. The duration of fire largely depends upon its magnitude and the quantity and quality of fuel provided.

Usually, twelve to twenty-four hours time is allowed to intervene between burning and dismantling the fire.

This method of firing is widely prevalent in Madhya Pradesh, and parts of Rajasthan and Gujarat.

Some regional variations occur in the construction of fire channels and the method of firing. A curious combination of apical and horizontal fire channels takes place at many places in Gujarat (Junagadh, Jamnagar, Kaira and Mehsana), Rajasthan (Udaipur, Ajmer and Jaipur), and Madhya Pradesh (Nimar, Ujjain, Dewas, Panna, Mandla and Bilaspur). Here, in addition to the horizontal fire channels, an apical fire channel is provided in the pile. But the apical channel is never used for igniting the fuel, and the fire is always kindled in the stoke-hole at the base. The purpose of keeping such apical channel has not been justified by any technological purpose.

Instances of piling in trapezium have been found in Kutch in Gujarat, Jaisalmer and Sri Ganganagar in Rajasthan, and East Nimar in Madhya Pradesh. In East Nimar, pots are piled up in a trapezium plan and two horizontal passages are left in the pile. Prepared stoke-holes are fixed at both the ends of these passages, and the fire is kindled in all the four stoke-holes. In Kutch, Jaisalmer and Sri Ganganagar, only one horizontal passage is made and that too does not cross the distal end of the pile (Fig. 4 : 4).

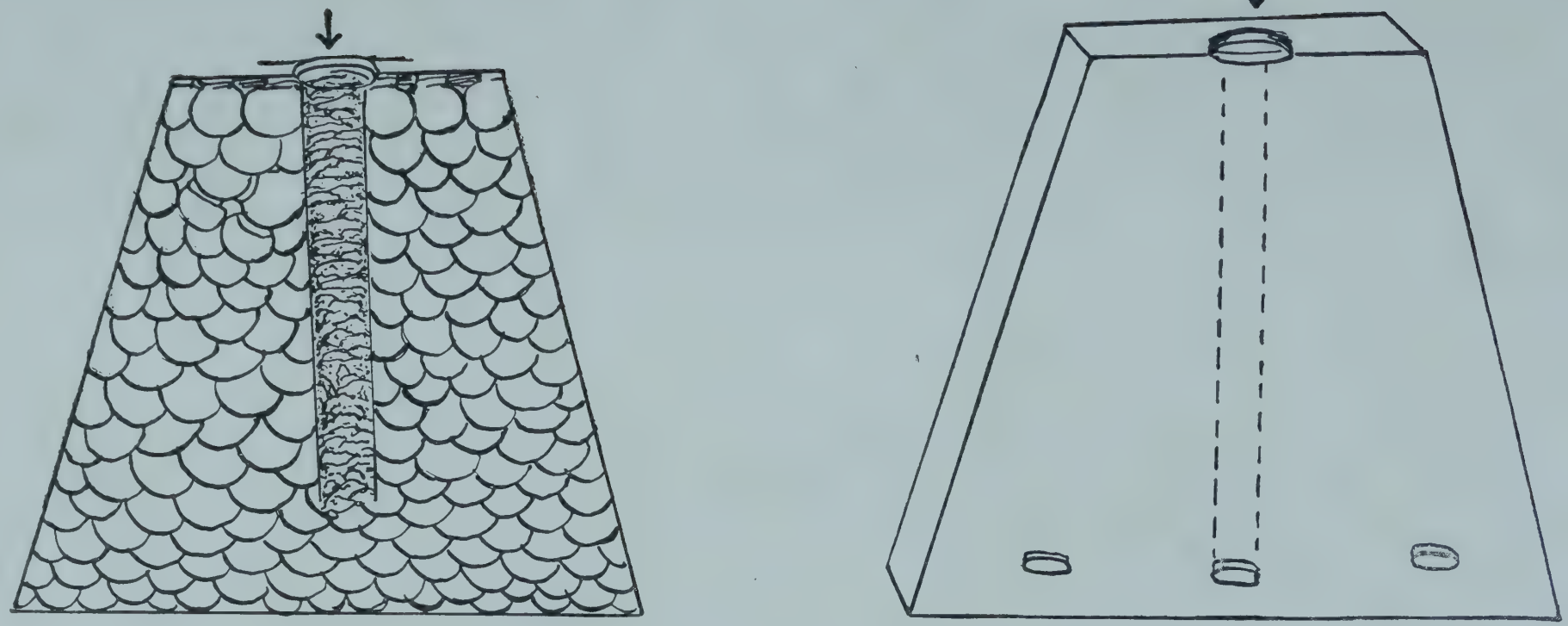


Fig 4 : 4 Trapezium plan of a pile with horizontal channel

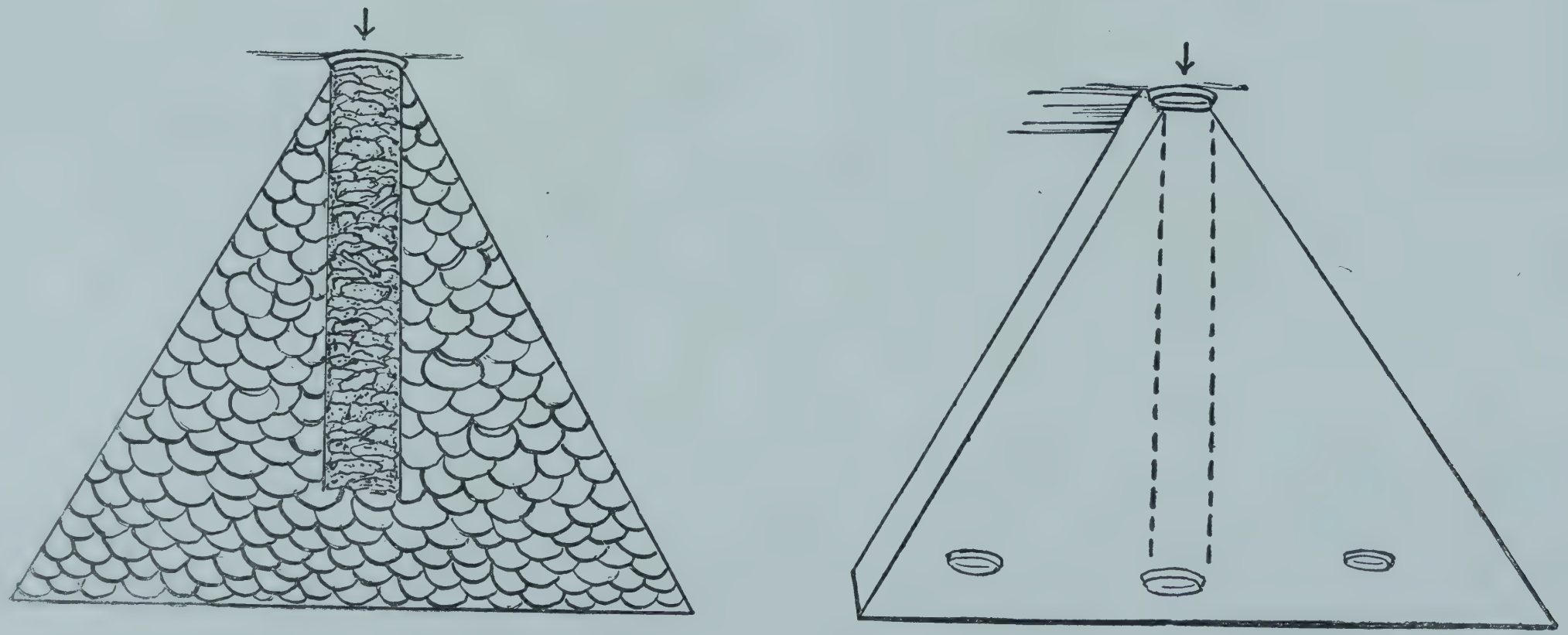


Fig 4 : 5 Triangular plan of a pile with horizontal channel

Three air-ducts are also provided in this type of pile. A similar arrangement of single horizontal passage has been found in Sirohi (Rajasthan) where the pots are piled up rectilinearly in a triangular plan (Fig. 4:5). The order of piling and the arrangement of fuel are not different from the preceding type, but in this case the firing takes at least three days time.

Open Firing without Fire Channel

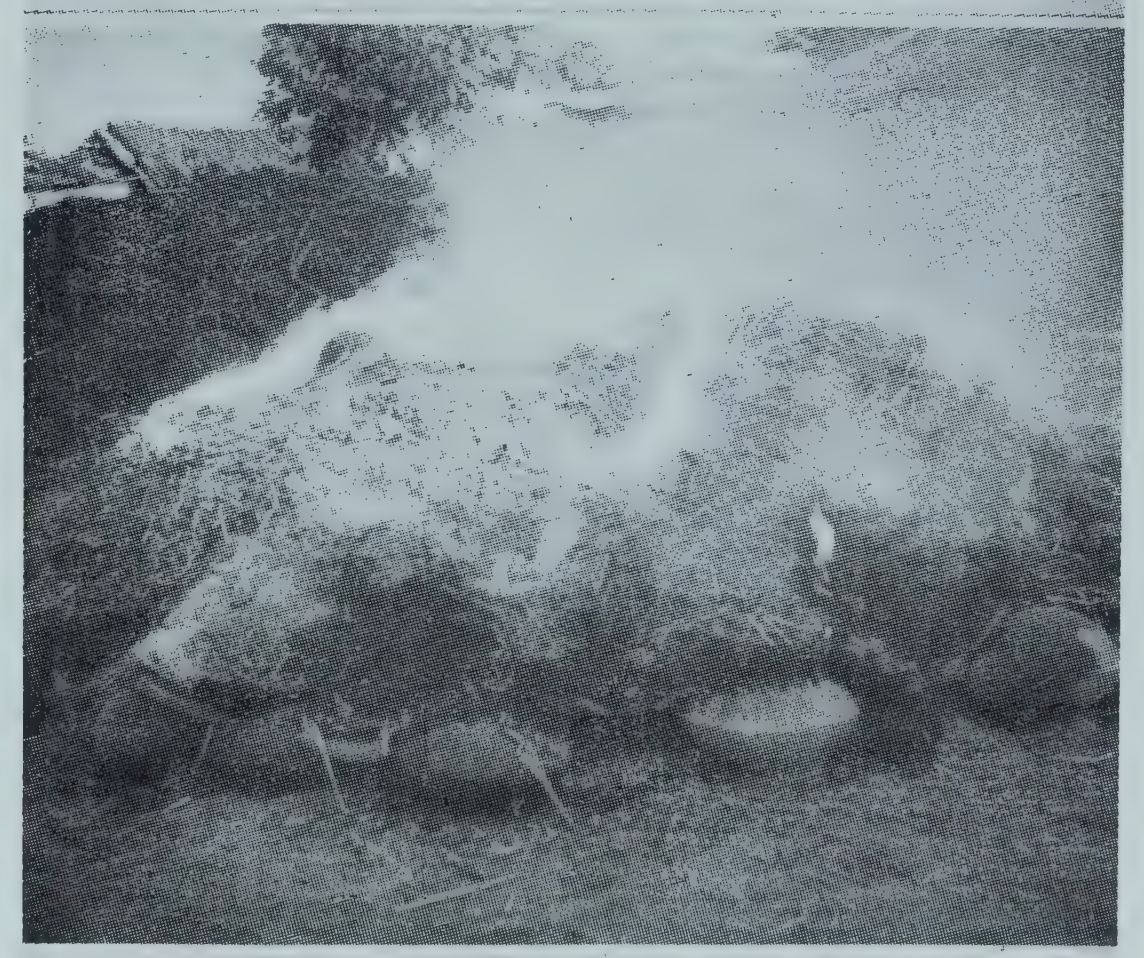
Under this type we find two methods of firing distinguished on the provision of fire-mouths. In the simplest form the pots may be burnt on a piece of flat or dug hollow ground. The depth of the pit may be 20 to 30 cm. The bottom is uniformly filled with split bamboo upon which pots are arranged at equal distances, the space between two pots being filled with dry brushwood or any other vegetable material. The Mizo in Assam keep the pots vertically and stuff them with dry cattle-dung. But the Urali in Kerala arrange their pots invertedly or laterally without stuffing them with fuel. At a time only ten to twenty pots are fired. After the pots have been arranged properly upon the fuel bed they are covered with split bamboo and dry twigs. The heap is kindled from all sides at a time. Once the fire is set in, it is kept unabated by adding more fuel until complete combustion is achieved. Fire is kept burning from one to three hours. When the fuel has been burnt, the combustion of every pot is examined. If any one of them is found underdone, it is again fired in the same manner.

This method of firing is practised by the Urali Kurumbar of Wynad in Kerala, the Mizo of Mizo Hills in Assam, and the Halwas of Bastar in Madhya Pradesh.

For firing huge quantity of pots under this method of simple firing about 200 to 1,000 pots of different sizes are arranged in a circular fashion on the ground with their mouths inverted. Piling is done on the bed of fuel which is usually brushwood and dry cattle-dung. If the brushwood is used in large quantity, the bed is rammed thoroughly so as to make it compressed and symmetrical (Fig. 4: 6). Big pots are placed below and small ones above, and this order continues till the pile attains a height of 1.30 metres to 1.70 metres. While thus arranging, dried cattle-dung

Fig 4 : 6 Ramming the bed of brushwood

iminary heating of pots
from Madras



Open-firing from Gujarat

Open-firing from Rajasthan

A horizontal kiln fron
Bengal showing the muf

A vertical kiln from Kashmir

Finished pots are pa
for market

and small pieces of wood are placed among the pots. Pots in the bottom row, surrounding the pile, are placed laterally with their bases towards the exterior side of the pile, and the pots above this row, on the edges of the pile, may be placed laterally or invertedly. With the completion of the arrangement of the pots the pile is formed into the shape of a dome (Fig. 4:7). The gaps among the pots on the top of the pile are covered with potsherds.

Fig 4 : 7 Arranging the pots on the bed of brushwood

Fig 4 : 8 Covering the pile with straw

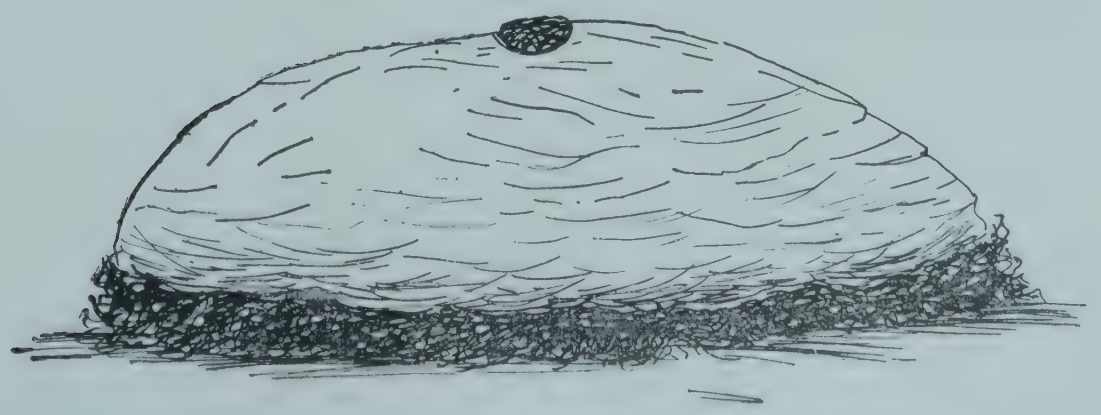


Fig 4 : 9 Mud plastered pile ready for firing

Withered leaves, hay and straw are thickly spread over the pile (Fig. 4 : 8). The pile is surrounded by a ridge of cattle-dung and tiny billets over which a thin layer of moistened straw is again spread. Finally, the pile is rendered with either a mud plaster or ash covering all over excepting a circular spot at the top and in the bottom from the ground level up to a height of 40 cm (Fig. 4 : 9). Through this unplastered portion of the pile on the ground level fire is kindled, whereas through the top unplastered portion smoke is ejected. Fire is kindled from all the sides of the pile at a time, and no specific fire-mouth is provided for the purpose of ignition.

This method of firing is largely practised in Madras, and parts of Andhra Pradesh.

Another method of firing in which the pile is provided with fire-mouths, the arrangement of piling remains the same as in the previous one. But while plastering the pile, four spots on different sides are left uncovered for ignition. From these fire-mouths fire is gradually passed into the pile through fuel links. Sometimes, when the pile is covered only by potsherds and grass, the number of fire-mouths is increased to as many as twenty or even more (Fig. 4:10). In Dhar (Madhya Pradesh), after every

Fig 4 : 10 Fire mouths made by old and worn-out pots

third pot in the bottom of the pile, a fire-mouth is provided. Fire-mouths are usually made of old and worn out pots, but sometimes they may be prepared of baked clay. One may mistake the external appearance of this pile to be one in which horizontal fire channels are provided. But although fire-mouths or stoke-holes are provided in this method, there is no fire channel inside the pile.

This method of firing has been largely found in parts of western Orissa, but it sporadically occurs also in all regions where open firing with horizontal fire channels is in vogue.

The site for open firing in general may be situated at the beak yard of the potter's house or anywhere within his homestead. In some cases, it is situated at one end of the potter's hamlet. On the day of firing, pots and fuel are carried to the firing spot by men, women and children. The dried pots and the fuel are once again placed in the sun for final drying. The pots are usually fired in the afternoon. If the firing is to be completed within twelve hours, it may be done on the day previous to the weekly market.

Generally, such fuels are used for firing which can rapidly burn, e.g., cattle-dung cakes, straw, refuse, husks, dry leaves, brushwood, etc. Charcoal or coke is not used. The potter has got a fair idea about the quantity of fuel required in proportion to the pots charged for baking. In Jullundur (the Punjab) the potter estimates that about eight quintals of cattle-dung cakes are required to bake four hundred pieces of earthenware, big and small. When cattle-dung cakes are not used, at least four quintals of strips of wood and eight quintals of saw-dust are required to bake the same amount of pot.

Usually, in all cases of open firing the pile is required to be covered with potsherds, mud paste, or any other thick cover which may prevent draughts of cold air and properly conserve the heat.

The fire kindles slowly in all cases of open firing where fire channels are provided, but in those cases where the pots are fired without any fire channel, sometimes, preliminary heating of the pots is done before they are actually fired intensely. The temperature obtained under open firing varies from 400° to 700°c. The duration of firing and cooling ranges from a few hours to ten days. This depends upon the construction of the pile, the type of fuel used, and also the climate and the season. As we have seen in the preceding pages, the firing through an apical channel, and particularly trapezium plan of piling, takes maximum time. It is perhaps due to the insufficient circulation of air inside this pile that combustion takes comparatively long time. In Himachal Pradesh, the complete process of firing and cooling takes about three to four days. In parts of Rajasthan, under the same type of firing it takes nearly ten days to dismantle the pile. While, in summer, it takes ten days, and in winter the duration of complete process is reduced almost by half.

The advantage of open firing is that it can be enlarged or compacted freely according to the need of the potter and can be fired in any open space. At a time, ten to one thousand pots of different sizes may be fired. But the demerits of open-firing are numerous. During rainy days, pots cannot be fired in the open, and while firing, if it rains, a good number of pots are damaged. Sometimes, all the pots are not uniformly fired if there is a strong wind. High temperatures cannot be attained by this method, and, finally, firing cannot be controlled, which is so vitally important for good pottery.

FIRING IN AN OVEN

In principle, this method can be described as firing the pots through a temporary or permanent oven. The pots may be piled up close to the oven with or without an enclosure.

Firing in an oven is widely prevalent in South India, and sporadically it is also found in Orissa, West Bengal, and Assam in the east and Maharashtra in the west. Instances of this type of firing have been found in Gujarat, the Punjab, Jammu, Uttar Pradesh and Bihar, but such instances are very rare and exist along the dominant open firing.

Considering the plan of piling, this type of firing comes into two broad classifications, namely, *Firing in an Unenclosed Oven*, and *Firing in an Enclosed Oven.*

Firing in an Unenclosed Oven

Dried pots are piled upon an inclined, or on an elongated concave, or on a plane piece of ground, with or without a frontal enclosure, but invariably with a permanent or temporary oven which may have one to four stoke-holes (Fig. 4 : 11).

Fig 4 : 11 Stoke-holes of an unenclosed oven

For firing, pots are piled up on any one side of the oven-wall, usually opposite the way from which wind blows. The piling of the pots starts from the stoke-hole (s) of the oven towards the rear in rows with their mouths inverted. Nine to twelve fired clay props, approximately 30 to 40 cm each in length, are fixed at equal distances near the stoke-hole(s), in order to prevent the

intense heat of the oven from striking the pots directly (Fig. 4 : 12). Pots are placed upon, as well as around, these props. All the pots of the bottom layer may be placed upon tiny clay props or on potsherds so as to raise their mouths from the ground and allow the heat to go inside. Further, the pots are placed one upon the other in the order that big pots are kept below and smaller ones above. If the pots are piled upon an inclined ground, the number of layers of pots is maximum near the stoke-hole, and it gradually diminishes on all sides due to the inclined nature of the base. All the rows of pots converge near the stoke-hole(s) with a narrow passage between the two rows. These rows gradually diverge towards the rear, and if the passage between the two rows is found to be quite spacious on the hind part, a short row of pots may be placed therein. While piling up, the pots are stuffed with dry cattle-dung and strips of wood, the quantity being more at the bottom and gradually less upwards. The pile is elevated 90 to 120 cm from the ground level. An oven of this sort may accommodate 500 to 700 pots of various sizes at a time. Before the pile is insulated, once again dung cakes, strips of wood and chaff are put into the gaps left between the pots. The pile is evenly covered with potsherds. Old and worn out pots are placed in a row on the fringe of the pile. Finally, ash and dust are spread over the pile to a density of 10 to 16 cm, excepting at the smoke vents which are left on the top as well as on the hind part of the pile by fixing pot-brims (Fig. 4 : 13). The entire paraphernalia of arrangement of pots may take four to five hours for four adults—two men and two women.

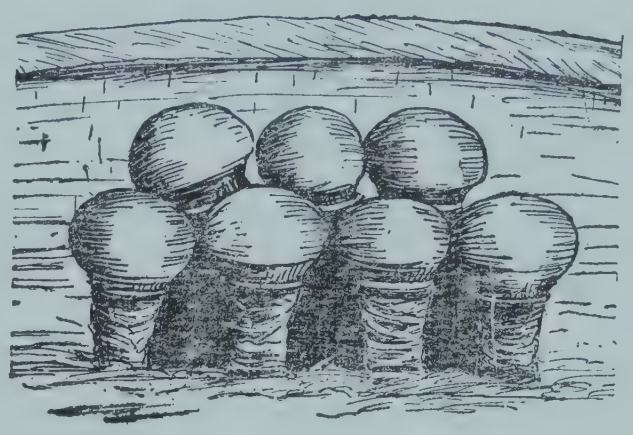


Fig 4 : 12 Clay props provided at the stoke-holes

Fig 4 : 13 Smoke vents in a pile

Fuel is burnt slowly at the stoke-hole of the oven for sometime, and the intensity of the fire is gradually and steadily increased. Slow firing continues for four to five hours or until the potter feels that pots in the oven have been suitably tempered to receive the direct flame. This he confirms by hearing a sort of simmering sound inside the oven. And after this stage, the potter ignites the

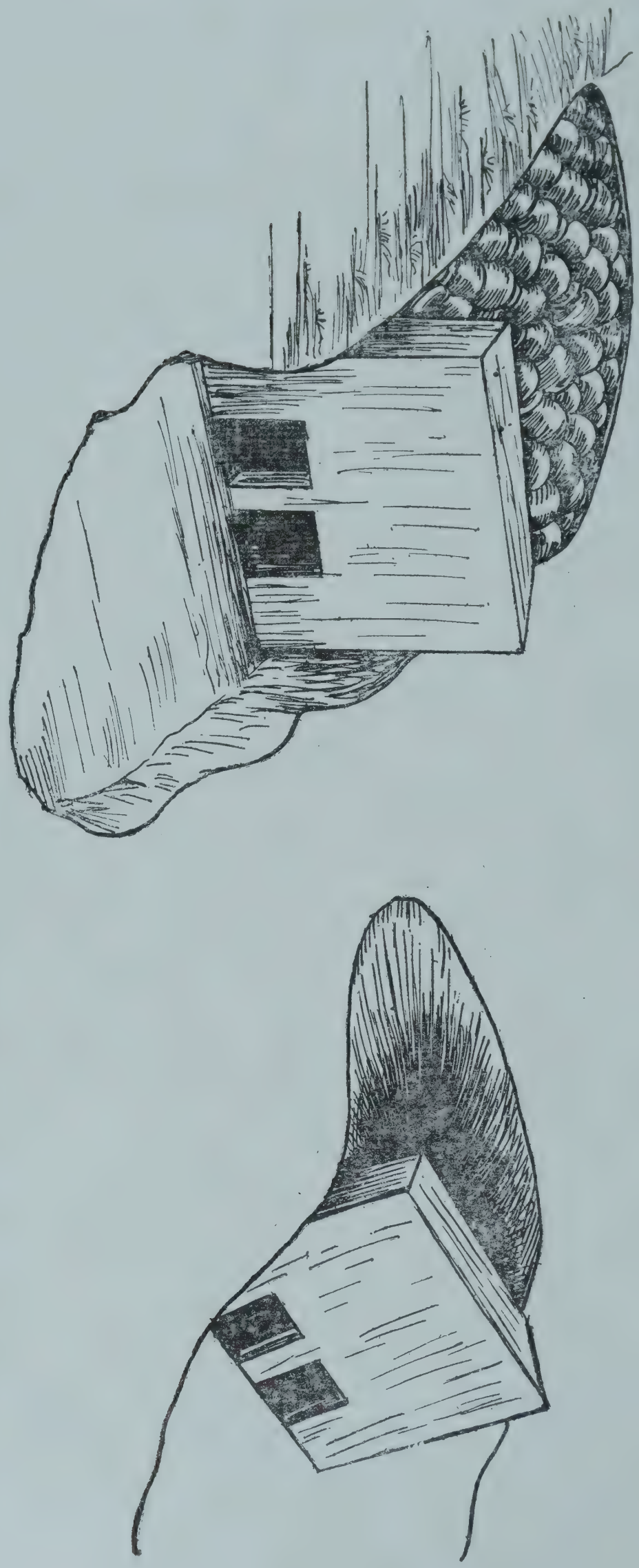


Fig 4: 14 Coastal Andhra type of an unenclosed oven

fuel placed within the oven and consequently stops kindling fuel at the stoke-hole.

The oven is left for cooling. Usually, the pile is dismantled on the second day, but during summer sometimes pots are taken out on the third day.

This method of firing is practised in Vishakhapatnam, West Godavari, Krishna, Guntur, Nellore, Cuddapah and Karimnagar in Andhra Pradesh. Sporadic distribution of this type occurs in Coimbatore and Tiruchchirapalli in Madras, Koraput in Orissa, Kolhapur and Ratnagiri in Maharashtra, and Goa.

There are certain regional variations in the construction of the oven. In coastal Andhra Pradesh, the oven is usually built in the open on an elongated concave piece of ground, with a permanent mud wall dividing the base lengthwise into two equal halves. The wall embodies at its mid-length, from the ground level, one or two stoke-holes side by side (Fig. 4:14). The height of the wall is usually little more than the ground level, may be 45 to 60 cm. The base attains maximum depth at the stoke-hole, namely, 75 cm to 90 cm from the ground level and gadually rises up to the ground level on all sides. The oven in Karimnagar, Tiruchchirapalli and Coimbatore is remarkable for its peculiar construction. It has no permanent structure although firing is conducted in this oven in the same manner as is done in a permanent oven. One or two stoke-holes are prepared on a plane ground with three to five stone slabs. In Goa and Ratnagiri, this type of oven has invariably only one stoke-hole (Fig. 4: 15).

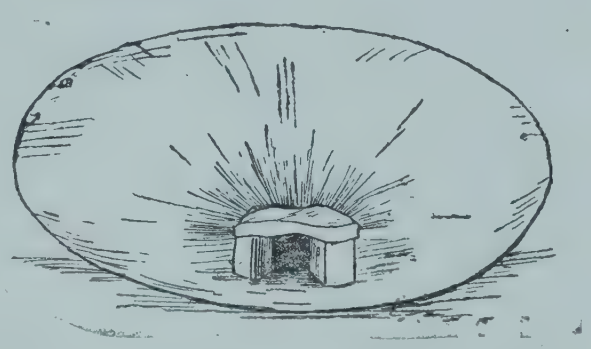


Fig 4: 15 Unenclosed oven with a single stoke-hole

Firing in an Enclosed Oven

Pots are piled up in a semicircular or parabolic or rectangular walled enclosure with temporary or permanent stoke-hole(s).

The method of piling and igniting is the same as described earlier for firing in an unenclosed oven.

This type of firing is very common in Kerala, Mysore, Maharashtra, Andhra Pradesh, Orissa, parts of West Bengal, Assam, and

South Bihar. It has been found in Jamnagar in Gujarat, Mirzapur in Uttar Pradesh, Jullundur in the Punjab, and Jammu in the State of Jammu and Kashmir, but to all these places this type of oven has been recently introduced.

Regional variations exist mainly in the construction of the walled enclosure and stoke-hole of the oven.

In parts of Assam, West Bengal, southern Bihar, northern Orissa, Kerala and Mysore (excepting Bidar, Bijapur, Raichur and Bellary) the shape of the oven is parabolic, with enclosures on all sides with a permanent stoke-hole. The parabolic oven is situated near the potter's house and is usually provided with a two-sloped or pentroof over it. The surface of the base of the oven is not on an equal plane ; it is slanting from the rear wall towards the stoke-hole except in Balasore, Dhenkanal, Cuttack and Puri in Orissa. The difference in the level of the base between the front and the rear ends is from 80 cm to 1.20 metres. It has been noticed that such ovens are constructed on sloping surfaces quite often. In the absence of natural inclined surfaces the potter usually prepares a sloping base for the oven. The height of the wall is not uniform all over due to the inclined nature of the surface, although the top of the wall remains symmetrical. The two long side walls are not straight. Each of them runs from the stoke-hole to the rear wall with a slight concavity. These two walls are not upright vertically, but they are convex. The wall is of medium thickness and is generally made of mud. Both the long walls meet with each other in a wide curvature, and at this point an arched opening is provided to function as the stoke-hole of the oven. Its size varies according to the dimension of the oven. In Balasore, Dhenkanal, Cuttack and Puri in Orissa the stoke-hole is not connected with a pit or trench (Fig. 4 : 16). But in other places the stoke-hole of this oven is connected with a pit or trench where preliminary heating is done. On the rear wall two to four square apertures are provided which function as smoke-vents. In addition to these apertures, there are two peep-holes, one in each long wall, towards the rear side for examining the heat of the oven during firing.

The semilunate shaped oven, which is found in parts of Andhra Pradesh and Mysore has a semicircular wall around its circular base enclosing only half of it. The hight of the wall gradually tapers on either side from its middle, or from the point of its curvature. At the mid-length of the wall, two arch-shaped openings are left side by side on the ground level to function as stoke-holes (Fig. 4 : 17).

In Kurnool and Mahabubnagar, the oven is constructed with some variations in its structure in order to adjust it with the direction of the wind. The oven consists of two semicircular walls joined with each other from opposite directions at their mid-

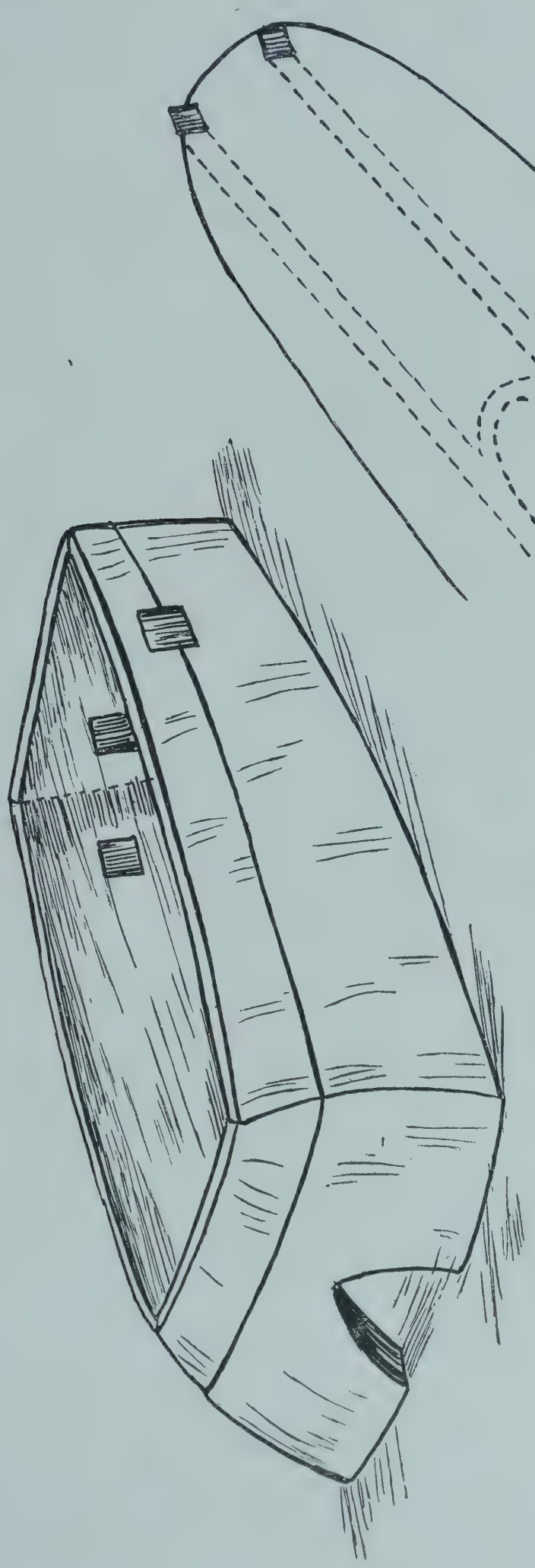


Fig 4 : 16 Stoke-hole and smoke vents in an enclosed oven

curvature points. They are further connected with common stock-

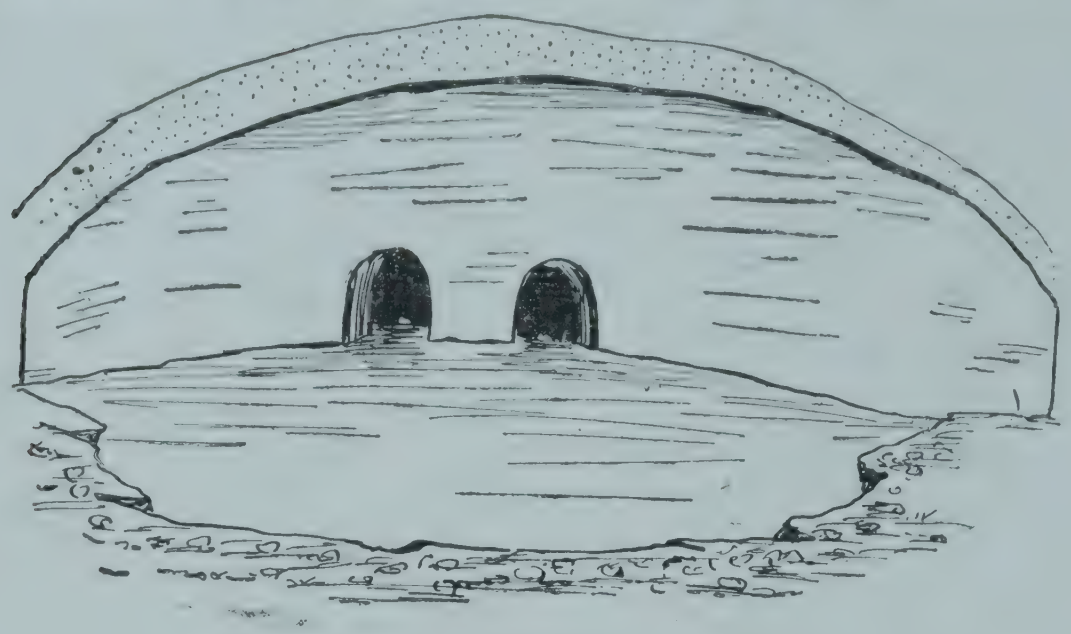


Fig 4 : 17 Arch shaped stoke-holes

holes (Fig. 4 : 18). Both the semicircles function as ovens but only one at a time. Pots are charged for firing in one or the other according to the direction of the wind. And when one functions as the oven, the other works as its wind-inlet.

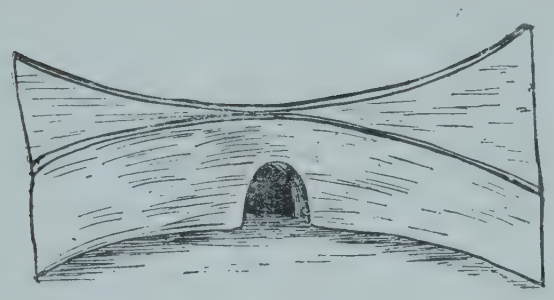


Fig 4 : 18 Semi-circular twin oven with a common stoke-hole

In Maharashtra, the oven is built with walls on three sides, one wall at the distal end and two side walls which taper from the distal wall to the proximal end. Sometimes the floor of the oven slopes gradually from the proximal to the distal end. Two to four stoke-holes are provided in the distal wall. The shape of the stoke-hole may be triangular, rectangular or semicircular.

In Jammu and Jullundur, this type of oven has a rectangular plan with walls on three sides. In Mirzapur and Jamnagar, it has circular plan.

The shape and the size of the wall-enclosure greatly vary, but that is not very significant unless it brings some technological change in the result of firing. In the same State, we may find two different constructions of wall enclosure. In Marathawada in Maharashtra, this type of oven has got two tapering side-walls ; but in Vidarbha in the same State, we find all the three walls to be of equal height. The temporary or permanent structure of the stoke-holes of the oven also does not bring any remarkable technological difference. Usually, all the ovens under this type have got permanent stoke-holes, but in Chanda in Maharashtra and also in Jullundur, no stoke-hole is provided in the walls of the enclosure,

and, therefore, for each firing temporary stoke-holes are made on the proximal end of the enclosure which is usually open (Fig. 4 : 19).

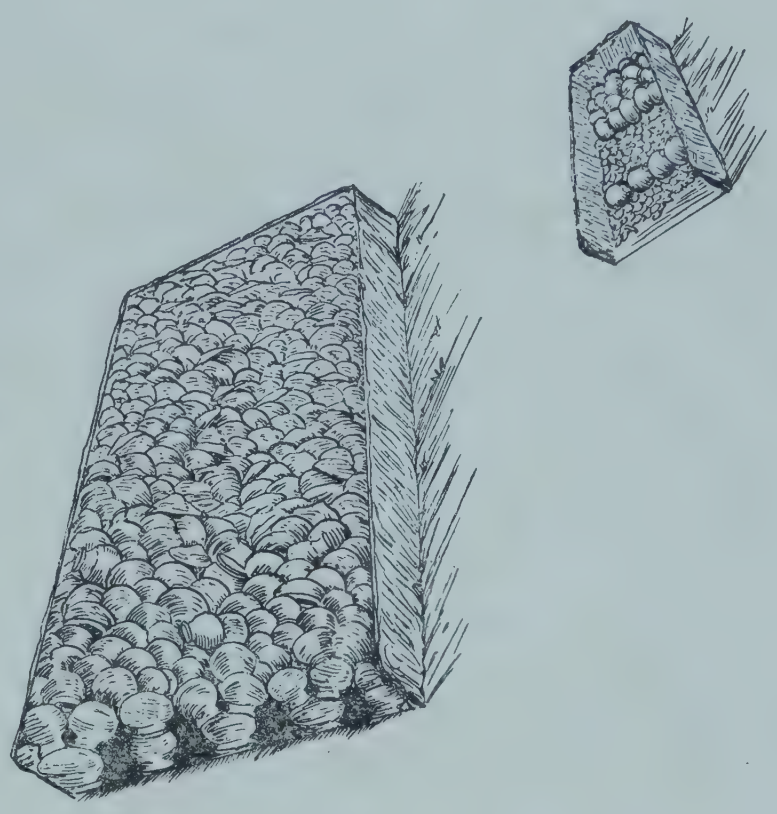


Fig 4 : 19 Temporary stoke-holes in an enclosed oven

The oven firing in general is distinguished from open firing for certain typical characters of its own. In open firing less wood and more cattle-dung, husks, straw, refuse, dry leaves and brushwood are used, but in oven-firing it is just the opposite. Uusually, *Jhamu* (casuarina), *Babla* (acacia arabica) and tamarind wood are preferred. In open firing, the pots are piled upon a bed of fuel ; but in oven firing no such fuel bed is prepared and the pots of the bottom layer are raised on clay-props or potsherds. Because of its open structure the pile in open firing is ignited from all the sides at a time ; but in oven firing the pile can be kindled only from one side where the stoke-holes exist. The enclosed oven conserves heat much better as compared to open firing. The degree of temperature obtained under the enclosed oven is between 700° 800°c. The enclosed oven has another advantage of its fortified enclosure which amply prevents the cold draughts of air from getting inside the pile and cause dunting of pots. Oven firing, usually, takes five to ten hours. In open firing any number of pots can be fired according to the immediate need of the potter, but the enclosed oven cannot fire pots more than the limited capacity of its chamber. Open firing can be made anywhere, but oven firing has to be performed only at the place where the oven is built. But in both the cases of open and oven firing the potter has got no control over the fire when it once spreads to the pile inside.

FIRING IN A KILN

The type of kiln used by the village potters in India is very simple in construction, but it conserves heat better than the open or oven firing. In the kiln the draught is controlled and the heat

is introduced to the pots by means of muffling. The kilns are broadly of two different categories, vertical and horizontal. In each kind, there are a number of structural variations which will be dealt with while describing the main types.

Kiln firing has been found mainly in eastern India, *viz.*, Assam and West Bengal, and parts of Orissa and Bihar. A large concentration has also been found in Jammu and Kashmir. Scattered occurrences of kiln firing are found in Jullundur and Bhatinda in the Punjab, Dehradun in Uttar Pradesh and Junagadh in Gujarat ; but in all these places this has been a recent introduction. Instances of kiln firing are met also in Vishakhapatnam in Andhra Pradesh, Cuttack and Ganjam in Orissa.

Vertical Kiln

In a vertical kiln the pots are fired usually on a perforated floor or through any other device to protect the pots from direct contact

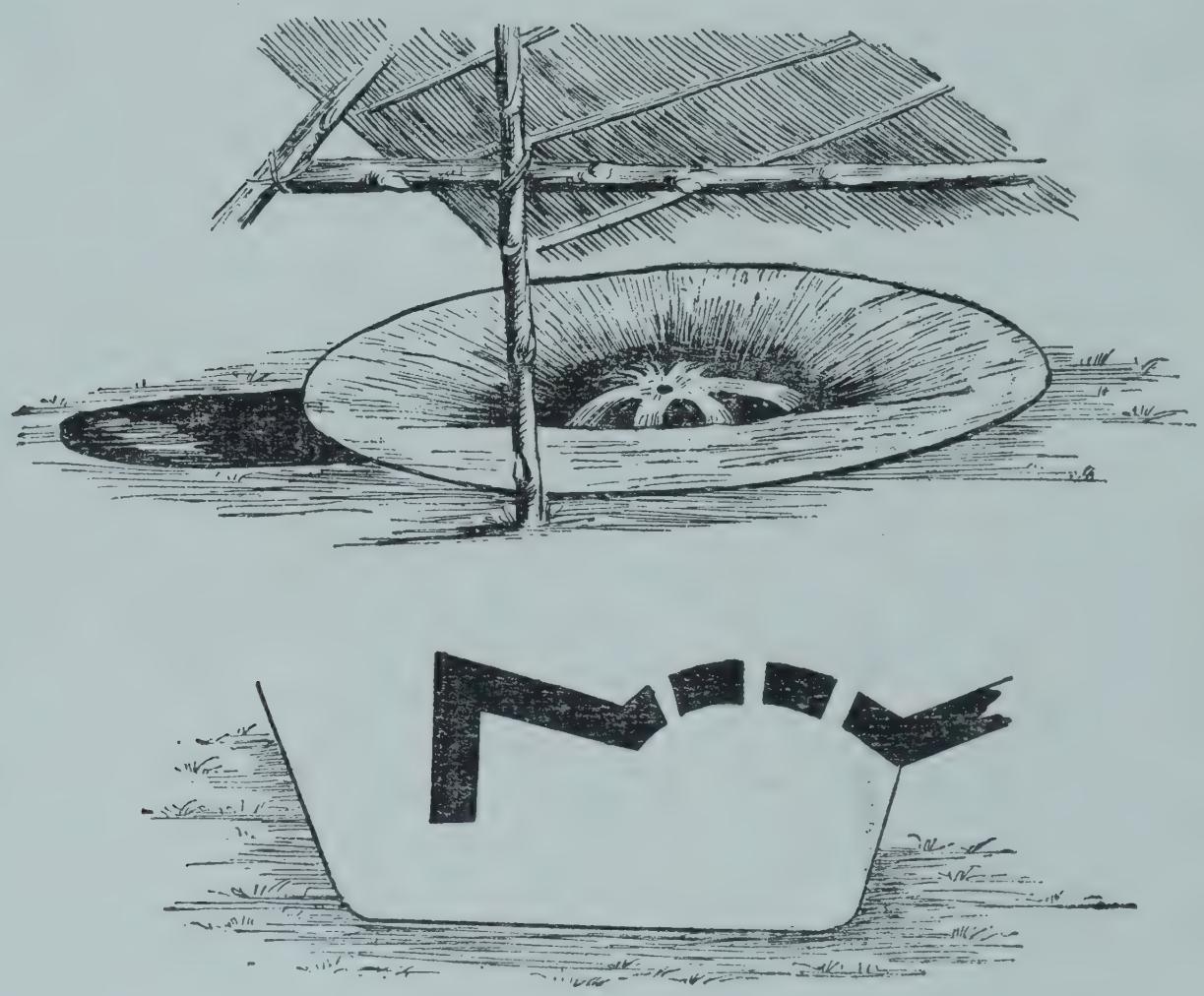


Fig 4 : 20 Vertical kiln under a roof

with the flames. The pots may be piled in a chamber formed by a circular wall, but at times there may not be any wall enclosure. Fire is kindled in the mouth of the trench or the stoke-hole just beneath the floor, and the flames find their way up through the piled up pots in a vertical direction.

The vertical kiln is widely spread over West Bengal, Assam, parts of Bihar and Orissa, and all over Jammu and Kashmir. It has been found also in Junagadh, Jullundur, Bhatinda and Dehra Dun.

There are certain regional variations in the construction of the vertical kiln which may be discussed here.

In Assam and parts of West Bengal, the pots are piled up in an inverted fashion on a concave floor around a circular gas aperture through which the hot gas is draughted up into the pile from stoke-hole lying nuderneath the floor. The kiln is normally situated about one to two metres apart from the dwelling houses and is usually provided with a two-sloped roof over it, (Fig. 4 : 20), so that it can be used throughout the year. The floor of the kiln is slightly concave and roughly circular. Underneath the floor lies the stoke-hole at a depth of 20 to 45 cm. The stoke-hole is a circular cavity with two openings to the surface for igniting and charging fuel. The stoke-hole and the floor are connected by a circular passage whose diameter varies from 35 to 40 cm. The Bengali potters place a clay structure (Fig. 4: 21) locally called *chhali* or jant at the upper end of the passage. The *chhali* is a sort of muffle which checks the upward passage of the hot gas emanating from within the stoke-hole and diffuses the heat thereby in all directions. The top head of the *chhali* is a solid block. There are eight passages on its lateral sides, one passage between two short pillars. The height of the *chhali* is in between 60 to 80 cm with a diameter of 40 to 45 cm. The Kolita potters of Assam place a ring of worn out pots around the gas aperture, instead of *chhali*.

Fig 4 : 21
A muffle, locally called *chhali*

At a time more than two hundred to four hundred pots cannot be fired in this kiln, because the hot gas diffusing from the centre may not be hot enough when it reaches the periphery of the pile. Pots are placed in a circular fashion with their mouths inverted. Large pots surround the *chhali* at the centre, and they are encircled by smaller ones. The pots are piled up in tiers up to a height of 1.50 to 1.80 metres. The entire pile is formed into a dome, and while thus arranging the pots, strips of wood and straw are placed between two layers of pots. The pile is covered with potsherds and straw respectively, and finally besmeared with mud paste leaving a small patch for the passage of smoke.

Fire is kindled in the stoke-hole. As the stoke-hole has been provided with two mouths, fuel is charged through one, and smoke emits out of the other. Mainly, wood is used as fuel. Firing takes about two hours. When the fuel placed within the pile catches fire, sometimes, the potter stops burning fuel in the stoke-hole and thereafter closes the mouth of the stoke-hole through which fuel is fed, and the smoke-vent is left free. This partial choking of the pots makes some pots from the bottom layer black either evenly or unevenly. The kiln is left for cooling for two days. On the third or fourth day the outer crust of the pile is carefully peeled off, and pots are collected slowly.

Fig 4 : 22 Perforated floor of a vertical kiln

Another type of kiln which resembles very closely to the above type is found in Darbhanga and Champaran in Bihar and also in parts of West Bengal. In this type of kiln the pots are piled up circular with their mouths inverted on a perforated floor, and the hot gas is draughted up into the pile from a subterranean stoke-hole through these perforations (Fig. 4 : 22). This kiln can be distinguished from the above type of kiln by its remarkable variation in the floor. Here the hot gas rises through several perforrations instead of a single large hole. The number of perforations

may be eight or more, and they are uniformly made on the floor. In Birbhum in West Bengal, the apertures on the floor are made in such a manner that it resembles a spoked wheel (Fig. 4: 23). These

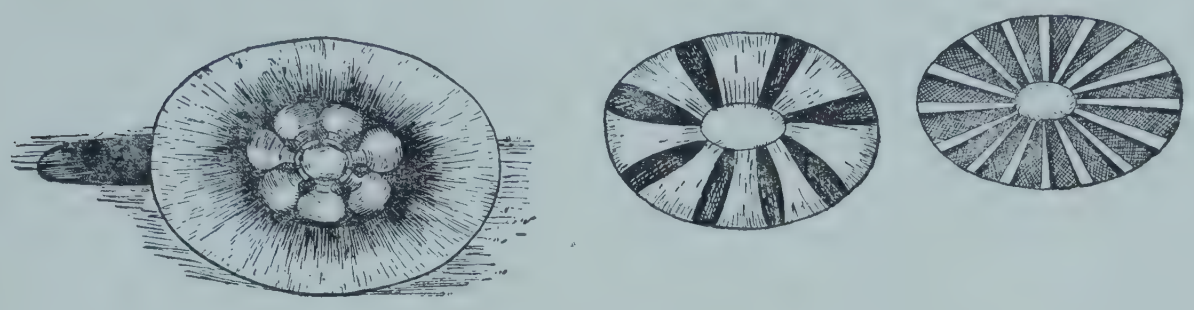


Fig 4 : 23 Perforated floor of a vertical kiln resembling spoked wheel

apertures are often girded by pitchers or small pot-brims. In Darbhanga and Champaran, the floor is reinforced with ceiling bars so that it will neither sag nor break by the load of pots. In Birbhum, the floor is supported by piers from beneath, either at the centre or at the peripheries. These wooden piers and ceiling bars are not burnt away by fire since they are protected by heavy mud plastering.

The method of piling and igniting is the same as described above.

In Jammu and Kashmir and also in parts of West Bengal this subterranean type of vertical kiln has a cylinderical enclosure (Figs. 2 : 24, 4 : 25). The cylindrical enclosure with perforated or grated floor is usually made of clay, but at times reinforced with sun-dried or fired bricks. The height of the cylinder varies from 75 cm to 2.40 metres. It is usually high in Jammu and Kashmir and low in West Bengal. In Nadia in West Bengal, there are narrow openings all round the wall at equal distances for air circulation (Fig. 4 : 26). In Jammu and Kashmir, as the wall is high, an open-

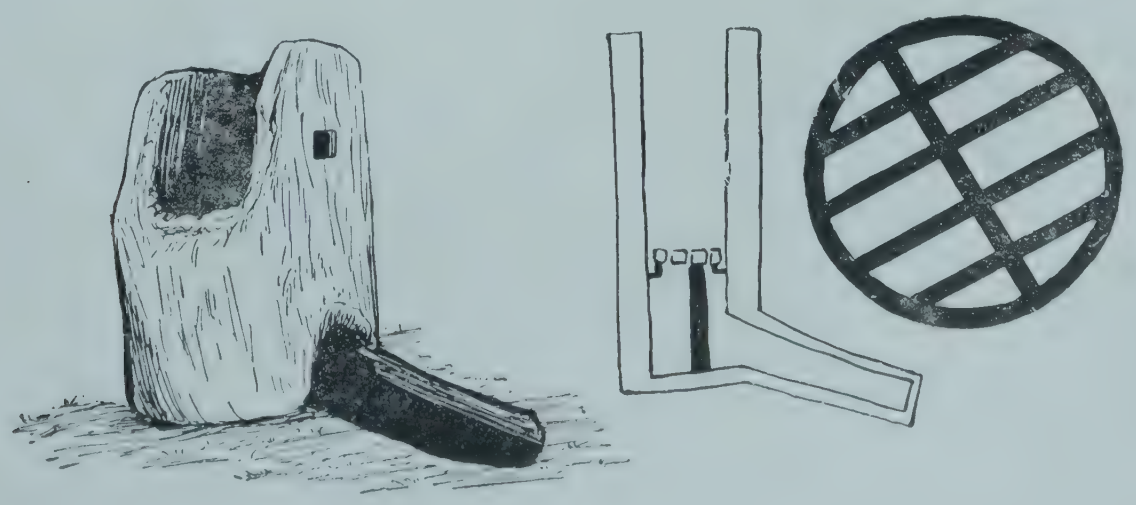


Fig 4 : 24 Vertical kiln with a cylindrical enclosure—Kashmir type

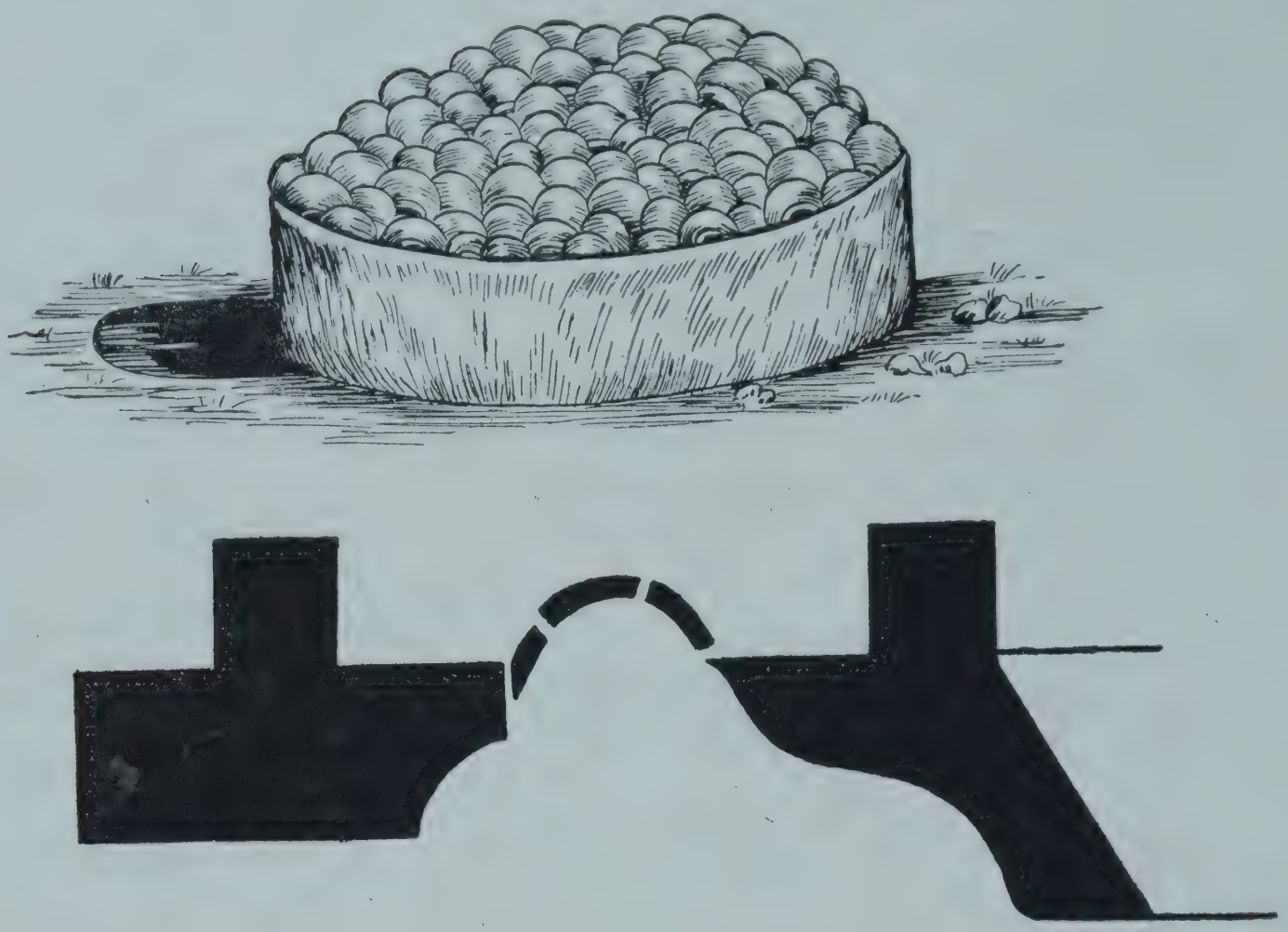


Fig 4 : 25 Vertical kiln with a cylindrical enclosure—Bengal type

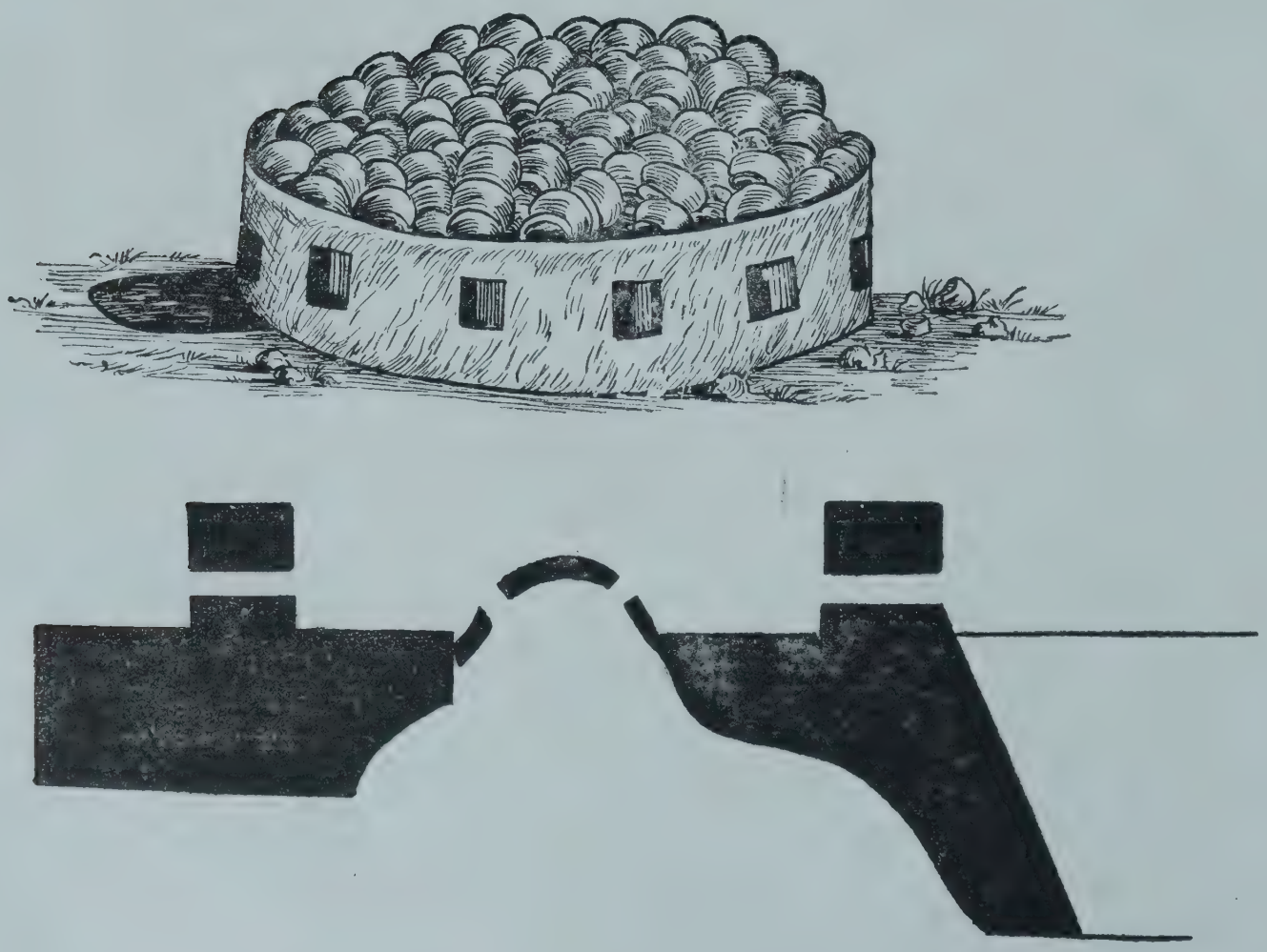


Fig 4 : 26 Vertical kiln with air ducts

ing is made at the top of the wall for loading and unloading of the pot. This opening is temporarily sealed with clay at each firing. Besides this opening there is a peep-hole near the top of the wall through which the potter can see the strength of the flame and proper baking of the ware. The pots are arranged within the cylinder invertedly in layers and assume a dome shape at the top which is finally covered by potsherds. Dried cattle-dung and strips of wood are stuffed inside the pots, and when the intensity of the heat increases in the kiln this inside fuel also begins to burn. The fire is developed for two to three hours and left for cooling for two to three days.

There is still another variety of the vertical kiln having a cylindrical enclosure. It is distinguished from the above type by the absence of subterranean stoke-hole. Here the pots are piled up on an iron grate or a clay perforated floor fixed at the mid-height of the cylinder and are fired from the ground level stoke-hole just beneath the floor (Fig. 4 : 27). This type of kiln has been found in Jammu, Jullundur, Bhatinda, Dehra Dun, and Junagadh.

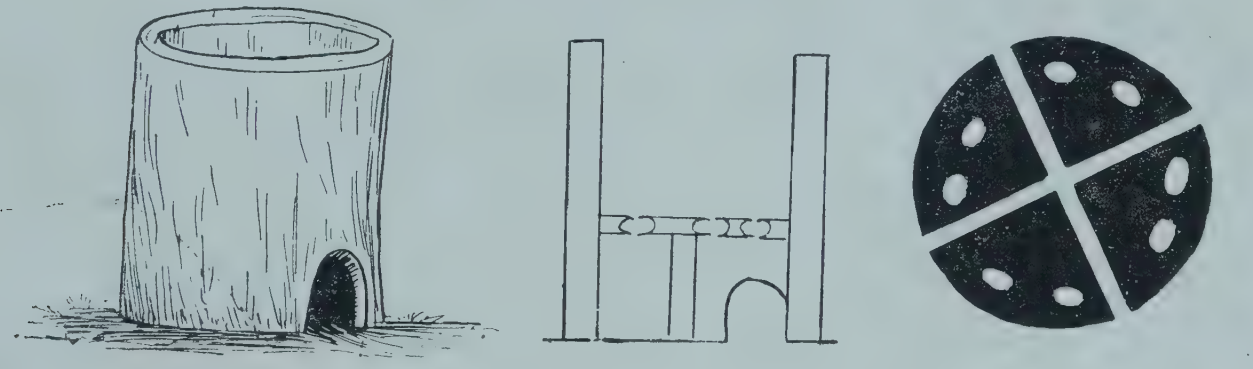


Fig 4 : 27 Vertical kiln with a clay perforated floor

The method of piling the pots and firing is not different from the above type.

Horizontal Kiln

In a horizontal kiln, unlike the vertical one, the hot gas in the furnace is draughted horizontally from the stoke-hole into the kiln through some sort of muffle. The form of the kiln is parabolic with enclosures on three sides, excepting the hind one. The floor of the kiln is inclined from the rear towards the front. The width of the floor is maximum at its hind part like an isosceles triangle and gradually it slopes towards the front. Hot gas is draughted into the kiln from the front side where both its long side walls meet with each other in an arch. The interior of this arch is terraced and resembles, more or less a balcony. The central side of the projected balcony contains elongated apertures, whereas its

superior surface embodies circular perforations. These perforations or openings on the superior surface are large towards the interior of the kiln and become gradually smaller and smaller towards the frontal enclosure. On the exterior of the arch, fire is kindled in the stoke-hole. The stoke-hole is a cavity on the exterior side of the arch, and it partly lies underneath the frontal side of the kiln (Fig. 4 : 28).

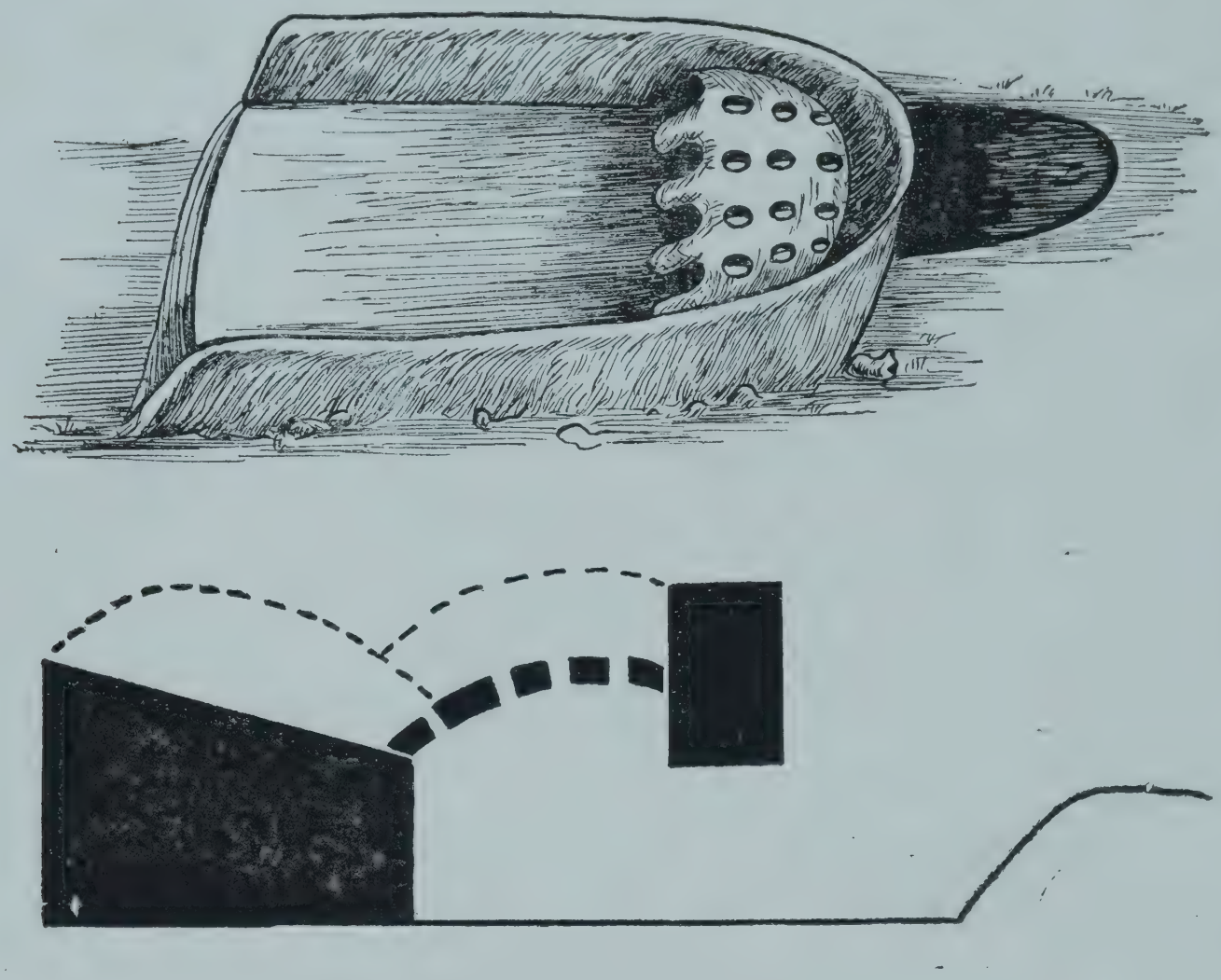


Fig 4 : 28 Horizontal kiln

Pots are arranged in rows from front to rear with their mouths inverted and in layers. Large pots are placed at the bottom and especially towards the perforated balcony of the kiln. The pots of the lowest layer are raised upon bricks in order to allow the hot gas to get inside the pot. Gradually, smaller and smaller pots are piled up in layers with damp fuel between two layers. Pots are placed in such a manner that the top becomes spherical. The pile is covered with potsherds, and over it wet straw and reeds are spread out. Finally, the pile is besmeared with mud, leaving a narrow strip of space on the open side of the pile just above the ground level.

Fire is kindled at the stoke-hole slowly in the initial stage, and its intensity is steadily and gradually increased. When the fuel, placed within the pile, catches fire, the potter stops ignition at the

stoke-hole, and firing is over thereafter. For cooling, the kiln is left for two days, the pile being dismantled on the third day.

This type of kiln has been found only in Howrah, Burdwan, and Murshidabad in West Bengal.

In some parts of West Bengal such a horizontal kiln has one straight frontal wall, and on one side of this wall lies the stoke-hole in a trench (Fig. 4 : 29). On the opposite side of the wall, corresponding to the stoke-hole, the perforated balcony is constructed along the wall. The base is slanting from the rear towards the front. The arrangement of pots and firing procedure are the same as have been discussed above.

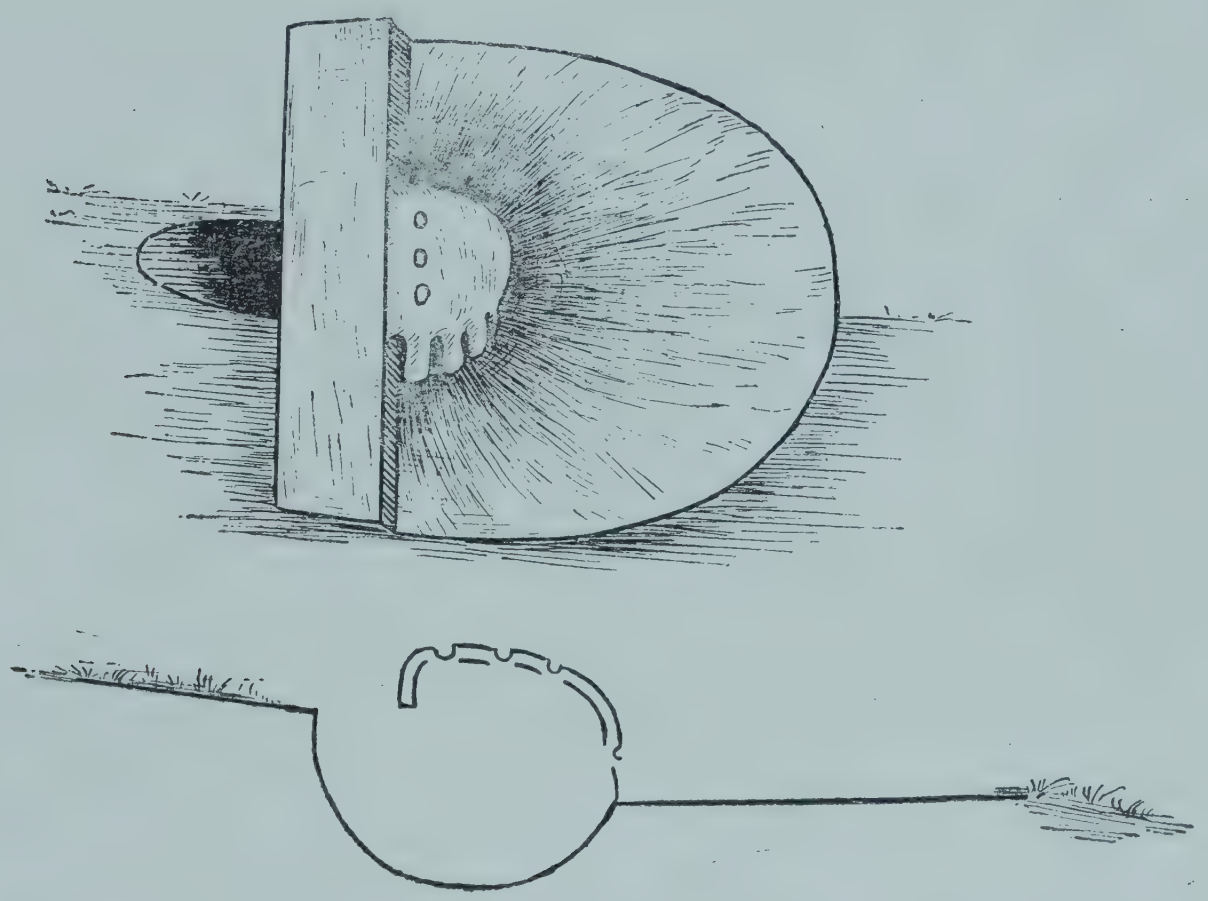


Fig 4 : 29 Horizontal kiln with a straight frontal wall

In Vishakhapatnam in Andhra Pradesh and Ganjam in Orissa, the kiln is just like the preceding one. But, in this, perforated balcony is absent. It has a second wall constructed of stone slabs, and the hot gas penetrates from the stoke-hole into the pile through the narrow space provided in between two vertical stone slabs. There may be three to five such stone slabs constituting a bag wall for the kiln. The procedure of piling and method of firing are as in the types mentioned above.

Kiln firing in general is much more advanced than both open and oven-firing. In this, the heat can be conserved better, and more temperature can be attained. But there are certain technical dis-

advantages with the types of kiln used by the Indian potters. In the vertical kiln, when the fire is made in the trench, the flame roars upward, and sometimes it is difficult to control it, particularly when the wind outside is unfavourable. It is for this reason that the potters of Darbhanga and Champaran use the subterranean type of vertical kiln only during the four months of winter. Another disadvantage with this type of kiln is its long process of feeding fuel. The potter sits near the trench and feeds fuel at intervals. He has to watch the flames constantly whether they die down, and all these take seven to eight hours' strenuous concentration on firing. Besides that, the kiln requires more wood and capital investment, and, therefore, it has not attracted many village potters of India in spite of certain technically improved qualities which it possesses.

FIRING UNDER REDUCTION ATMOSPHERE

In the preceding pages we have described the methods in which firing is done in oxidation, *i.e.*, 'the firing is done in such a manner that combustion is complete, and in consequence the burning gases are amply supplied with oxygen which causes metals in clay to give their oxide colours.' Under this type of firing, the pots become grey or red depending upon the type of slip used in the making. There is another method of firing in which the pots become black. This method is known as 'reduction, which, in contradiction to oxidation, is a condition of burning gases in a kiln in which combustion is incomplete or smokey, the carbon present having the effect of reducing the oxides to their respective metal forms.'

No separate kiln is required for firing the pots under the reduction method. There are distinct methods for this firing. The pots are piled up with the same arrangement of fuel as we have seen in case of open, oven or kiln firing for red pots ; but unlike oxidation firing, after the fire has burnt for certain time, the pile is entirely stopped up by a thick paste of clay or wet ash and smoke retained therein. Sometimes, when the top of the pile glows by intense firing, the potter hurriedly throws husk, cattle-dung, or any such matrials into the oven which may produce more smoke inside the pile. Immediately, all the stoke-holes and any other outlets are sealed properly and smoke is choked inside. In Maharashtra, sometimes worn out cycle and motor tyres are used for creating smoke. The pots come out black. This method is practised for firing large quantity of black pots and is well known chiefly among the potters of Madhya Pradesh, Maharashtra, and Andhra Pradesh.

The potters of North-western India know a slightly different method when they have to make black polished ornamental wares. A big jar is coated with a thick paste of mud and cattle dung. A semi-spherical pit is dug. The fire is kindled at the centre of the pit with two layers of dung-cakes. The jar is placed in the pit and covered all round with two layers of dung-cakes upto the neck of the jar and covered by a thick layer of earth and ash. The sun-dried articles are placed in the jar with a good packing of dung cake pieces. The mouth of the jar is closed with a lid. The fire gradually developes, and when the wares inside the pot glow red, the lid is opened, and a few handfuls of dung pieces are thrown into the jar ; briskly the lid is closed, and with the clay and the ash the whole pot is covered to prevent escape of any smoke. When the pot cools down, the articles are removed. They will be shining jet black. Obviously, only small articles can be fired by this method.

Now, if we review, in general, the types of firing and their distribution in India, we come to an interesting result, which resembles more or less like the one we have seen earlier in the distribution of 'beating tchniques'. When we refer to the three main types of firing, we find that open firing has the largest concentration in upper India, particularly in northern and western India ; the oven firing keeps itself mainly in South India and tries to spread eastward upto Orissa where it meets kiln firing occupying practically the whole of Eastern India. Infiltration of some of these firing techniques occurs when one of these three types is used along with another ; and this happens mainly in Central India. In North India, from Himachal to Uttar Pradesh, we find a type of open firing in which fire is kindled from the apical hole. In South India, we have an oven-firing in which fire is always kindled from a stock-hole at the bottom. These two diametrically opposite methods appear to exist together in Central India. Oven firing extends upto Maharashtra. In Madhya Pradesh, Gujarat and parts of Rajasthan, we find an open firing with a horizontal fire-channel which tends to get the form of a stoke-hole which we find in oven type. Again, in these States we have seen at many places the combination of apical and horizontal fire-channels. The kiln firing which is met with in East India appears to be an improvement upon oven firing because of its draught regulation and the system of muffling. Thus, the genetic connection between the kiln firing and oven firing establishes a continuous link between South and East India. However, the appearance of kiln firing in Jammu and Kashmir, leaving a vast area between Bihar and the Punjab is very important and has to be accounted for.

PAINTED POTTERY

Painted pottery is of two kinds: one is painted before firing, and the other is first fired and then painted, but there is no technical difference in the firing process of the pots which are painted beforehand. In the following pages, we will describe the techniques, the designs and the distribution of painted pottery in India.

PAINTING BEFORE FIRING

Techniques

Pigments. Only inorganic colours can be used for paintings before firing. Among the mineral pigments, red ochrous clays, haematite, and other natural earths are largely used by the potters.

Black

Generally, the following three colours are prepared:

In the Punjab, *nor* (a levigated ochre) mixed with a little indigo is used for black pigment. In Rajasthan, the black pigment is made from *paraie,* a kind of pyrolusite (manganese dioxide). The *paraie* is procured from hillock. It is sometimes known as *karorang, bana* or *kala bono.* It is dark brown in colour and burns brown or purplish black.

Red

Red ochre is the most widely used mineral pigment. In the Punjab, *hirmich* (haematite) mixed with a little vermilion (mercuric sulphide) is used for dark red colour. Another variety of red ochre, locally called *moram,* is also used in the hill districts of the Punjab. In Rajasthan, light red colour is prepared from *ramraj,* and dark red is prepared from *geru,* or *hirmich* or *hirmji,* or *bani* or *rata bona*—all red ochrous clays and iron oxides. In Kutch, a yellow ochre called *bana* which burns shining red in the firing, is used.

White

For white pigment, calcium carbonate or calcium sulphate is used, *khadi, khariya* and *dholabona* are some of the local names for the calcium carbonate used as white pigment.

Preparation

The pigments procured from natural resources are powdered and dissolved in water to the required consistency. With the thick

solution, fine lines cannot be drawn, and, therefore, a thin solution is always preferred. In Rajasthan, for preparing black paint from *paraie*, the ingredient is first of all placed in an earthen vessel and cooked in fire for some time. After cooling, it is pulverized, sifted, and mixed with gum in the following proportion:

Paraie	..	1 kg
Gum	..	50 gms

The pigment thus reduced is dissolved in water for use. The sticky paint is stored in an earthen cup. In Kutch, sometimes white pigment is made by burning the horns of a deer. It is powdered and mixed with water.

Tools

The only tool which is used in painting is the paint-brush locally called *kuchi* or *kunchi*. Paint-brush is usually made of donkey or horse mane. A bunch of mane is fastened together by a thread in the middle, and sometimes a thin stick is provided with it to serve as holder. A paint-brush may be made simply by folding a piece of cloth. A thin bamboo stick bruised at one end is also employed as paint-brush. In Dehra Dun, the paint-brush is made of a kind of grass called *gorala*. The paint-brush is known as *moochan*. In Rajasthan, the paint-brush made of cloth is called *badi*, and that which is made of bamboo is called *tura*. The potter keeps a number of brushes for use. For different colours, separate brushes are required. Two to three weights of paint-brushes may be made for different uses. Fine and pointed bristles are required for drawing thin lines and thick bristles for thick lines.

Mechanics of Painting

Painting is done on the pots slipped and dried white-hard. The brush is held in the right hand with the fingers used in holding a pencil. In this position, the thumb opposes the index finger with the brush between. The position in holding the brush and the axis of hand may have personal variation according to the convenience of the potter and the portion of the pot being painted. It also depends upon the type of brush used. The brush provided with a stick-holder is often gripped between the thumb and the index and middle fingers.

During painting, the potter freely moves his arm, but, at times, he may have to keep his elbow firm against the body. A skilled potter does not make haste in painting. Each line is drawn slowly,

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carefully and painstakingly. The brush strokes may be short or long according to the required design. Whenever the brush is dipped into the paint, the tip of the brush is drawn against the rim of the paint vessel to remove the excess paint, which otherwise may overflow and spoil the design.

The method of contact of the brush with the pot is dependent upon the types of designs and personal convenience. The angle formed by the brush with the horizontal plane is governed by the position of the pot and the type of designs being painted thereon. Usually, fine lines are drawn by the pointed tip of the brush, and the flat side of the brush tip is used for producing wider lines. The brush may be held at an obtuse angle, usually, when strokes are short and mincing. It is always held at right angle when a circular motif is to be painted on the horizontal plane and for giving sweeping movement to a long stroke, the brush has to be moved at an obtuse angle. At times, it may happen that the angle of the brush changes from acute to obtuse in one long stroke depending upon the surface of the pot and the line to be drawn. Much of the methods of contact and positions of the brush are subject to personal variation.

In certain types of painting, and by certain potters, only fingers are employed for this purpose. The index finger of the right hand is dipped in paint, and designs are made by smearing it on the surface. All the four fingers may be used for painting the rim on the bottom of the pot. For drawing thick lines, the finger may also be used. But, however, finger painting is not a very common procedure and is attributed to unskilled potters.

The position of holding the pot, while it is being painted, depends upon the size of the pot, the types of designs to be made, the surface of the pot, and also the personal convenience of the painter. A small pot may be kept in the left hand and painted by the right hand. A big pot may be kept on a flat ground or a stool. For drawing long straight lines round the pot, the potters devise several methods. The potter temporarily fixes the pot on the wheel head by a slightly stiffened clay, and a jerk is exerted on the wheel. The pot rotates along the wheel, and the potter contacts the surface of the pot with his brush dipped in paint. The wheel rotates anti-clockwise, and the brush makes sweeping line on the surface. The resulting lines produce a perfect circle round the pot. But this technique can be applied only by men, because women are tabooed to work on the wheel. Since painting is largely a women's job, the women have evolved another technique of rotating the pot while it is being painted. In Himachal Pradesh, the pots are

turned between a pivoted base called *bhaunri* and lid called *chitkapana*. Both the tools are made of clay. The *bhaunri* is provided with a pointed iron nail which rests on a flat stone during operation. It has a concave surface on the top of which the convexed bottom of the pot rests. The lid covers the mouth of the pot, and when pressed above by the left palm, pot rotates between the pivoted base and the lid by a singgle jerk. At many places in Rajasthan, the pot is turned on an inverted potsherd or an elevated ground (Fig. 5 : 1). In Dehra Dun, the pot is suspended against a tree or a roof by a long string which holds the neck of the pot. The pot rotates by turning the bottom with hand.

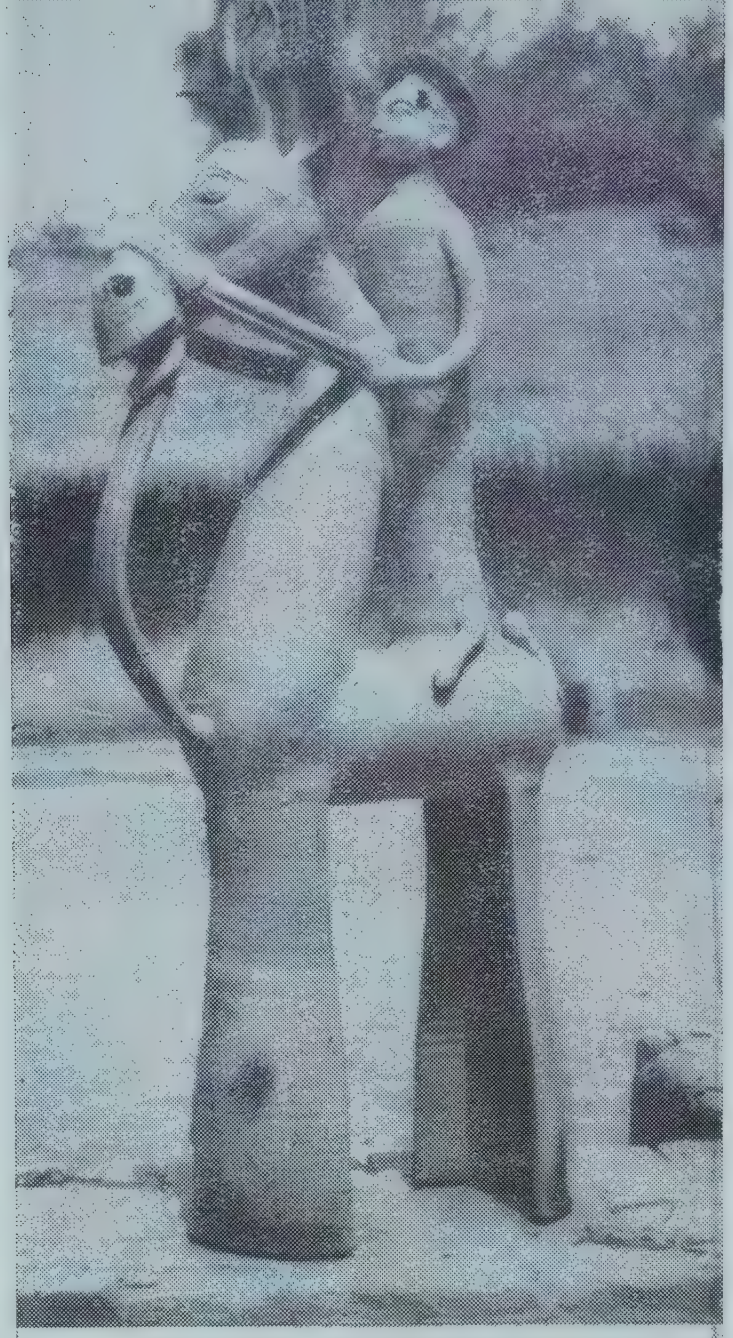
Fig 5 : 1 Painting

For painting the bottom, the pot has to be kept inverted on the ground. The pot is turned in different positions for making horizontal lines on the surface. Usually, it is kept on an elevated and smooth ground or a mat which may help turning the pot while being painted. Sometimes, the potter has been found keeping the pot on his or her raised knee at the time of painting.

Skilled potters always try to achieve uniformity in the thickness of the line, the intensity of the colour and the symmetry of pattern which they do with confidence. The steadiness of the hand is the another quality of a skilled potter, for which every mother repeatedly warns her daughter to develop at the primary stage of learning.

Designs

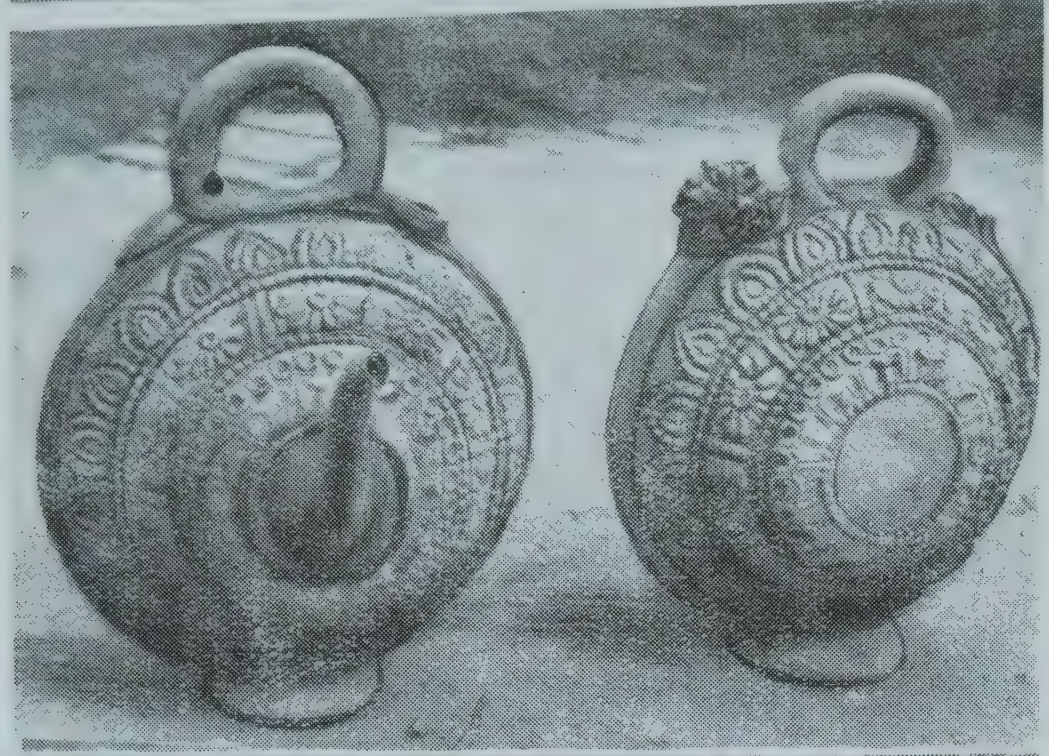
Before describing the painted designs on pottery, it is worthwhile to explain the colour scheme and treatment of the background. Grey, red and white are the only three colours chosen for the background on which designs are to be made. Grey or red colour is widely preferred for background painting. White background is painted largely in Gujarat and the desert districts of Rajasthan. Some of the ceremonial pots need to be painted on



Terracotta horse of **Salhesh** (a deity of Dusadh caste) from Darbhanga : Bihar

Painted pots from Kutch (painted before firing)

Painted pot from Kutch (Paint
before firing)



Ornamental **surahi** (water jar) wi
lion head from Darbhanga : Bihar

Painted ceremonial pot from Dar
bhanga : Bihar (Painted after firing

Painted ceremonial pot from Dar-
bhanga : Bihar (Painted after firing)

white background. But nowhere is black background painted for the designs. In one pot, the background may be painted in two colours—grey and red, or red and white. In this case, if the bottom of the pot is left grey, the body and the neck of the pot are painted red. In the same way, if the bottom is painted red, the body and the neck are treated by white paint. No special slip is prepared for grey colour. The neck and the body of the sun-dried pot are dipped into red slip in an inverted position, and the bottom is left unslipped. The unslipped bottom burns usually grey—a colour which the clay gets under oxidation firing. The potters of Churu (Rajasthan) make pleasing pattern to the background by painting the pots in panels against the original colour of the clay. From rim to the bottom of the pot is slipped in alternate panels. Such panels are made by a mop dipped into red slip. Both the slipped and unslipped panels are further decorated by geometrical patterns in black colour (Fig. 5 : 2). In white background, usually red and purplish black designs are made. In the light red background, the potter may use a dark red, black and white designs. The white colour may be applied for giving dots or dashes in the patterns (Fig. 5 : 11, 5 : 31, 5 : 33—5 : 35) but seldom used by itself in forming independent designs.

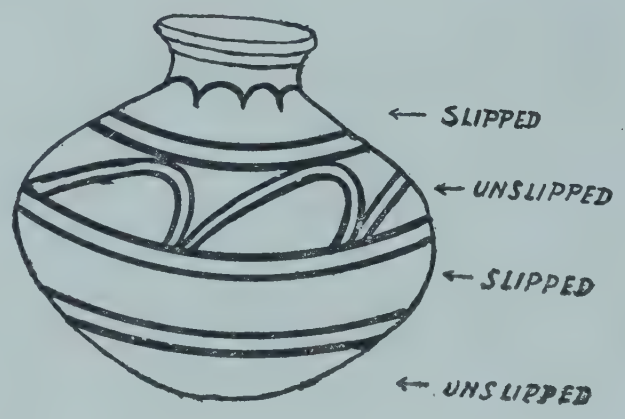


Fig 5 : 2 Painted sliped and unsliped pitcher. Loop pattern.

The designs on the painted pots appear to be mainly geometrical and naturalistic. Some potters have been found painting animal motifs, but not a single representation of human was seen anywhere. Though the designs are often simple, they are drawn in a definite order. Every symbol is defined by a name. Some of the geometric designs are named as follow :

1. Straight lines (Fig. 5 : 3a) — *Likati, Leek,* or *Lakeer*
2. Wavy line (river pattern) (Fig. 5 : 3b) — *Sankli, Par,* or *Kanwli*
3. Loop patterns :
   (a) Continuous loop lines above a horizontal straight line (Fig. 5 : 3c) — *Honkli*
   (b) Loop lines bordered by a horizontal line below as well as above (Fig. 5 : 3d) — *Phali*

4. Square blocks suspended from a horizontal straight line (Fig. 5 : 3e) — *Dugdugi*

5. Pairs of strokes arranged between two parallel horizontal lines (Fig. 5 : 3f) — *Juntiya*

6. Dots :
   (a) Dots arranged between two horizontal lines—grouped parallel (Fig. 5 : 3g) — *Tibi or Tipiya*
   (b) Dots arranged between two diagonal lines grouped parallel (Fig. 5 : 3h) — *Ari-turi*

7. Circle (Fig. 5 : 3i) — *Imarni*

8. Grid patterns :
   (a) Checker pattern (Fig. 5 : 3j) — *Gariya*
   (b) Network of opposing diagonal lines (Fig. 5 : 3k) — *Jali*
   (c) Network of vertical and diagonal line (Fig. 5 : 3l) — *Gario*

These symbols are further developed into various designs forming lozenge pattern, triangle patterns and many more complex patterns. The geometrical patterns are better understood by observation than by description. We may take a few most common motifs in the painted pottery of Gujarat, Rajasthan, and the Punjab.

(i) *Straight line borders.* In its simplest form, the surface of the pot is painted by multiple continuous horizontal lines which separate it into bands or panels (Figs. 5 : 7, 5 : 21, 5 : 29, 5 : 44). Vertical borders forming individual panels of design have not been found anywhere. But closely grouped verticals or diagonals painted along horizontal lines are quite popular in many places in Rajasthan and Gujarat (Figs. 5 : 16, 5 : 33, 5 : 45). They are also used as a space filler (Figs. 5 : 6, 5 : 20, 5 : 26, 5 : 27). Straight line borders are abundantly painted in combination with many complex designs (Fig. 5 : 4, 5 : 5, 5 : 8—5 : 20).

(ii) *Wavy line.* Instances of painting wavy line or of river pattern have been found at many places in the Punjab and Rajasthan but very rarely in Kutch. The wavy lines are often painted between two horizontal straight line borders (Fig. 5 : 46). But,

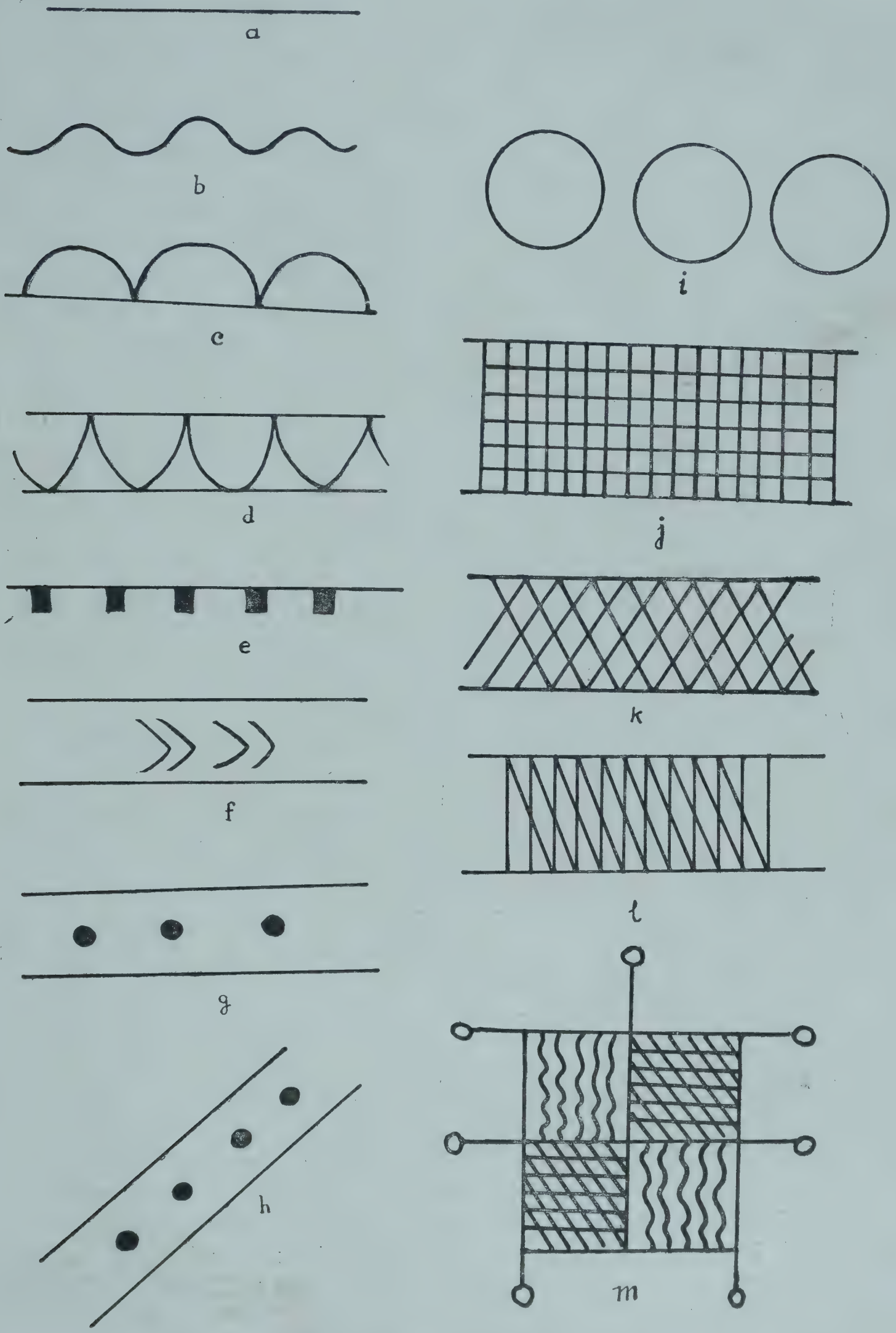


Fig 5 : 3 Alphabets of design for painted pottery

a. Straight line ; *b*. Wavy line ; *c*. Loop pattern ; *d*. Loop pattern ; *e*. Square blocks ; *f*. Pairs of strokes ; *g*. Dots ; *h*. Dots; *i*. Circle ; *j*. Grid pattern ; *k*. Grid pattern ; *l*. Grid pattern ; *m*. A geometrical leit-motif.

sometimes, it is independantly used as a border (Fig. 5 : 37). It is also used in combination with loop patterns (Figs. 5 :39, 5 :41, 5 :43).

(iii) *Loop patterns.* The continuous looped lines closely bordered above as well as below by horizontals (Fig. 5 : 2) from an interesting pattern of painting of pots in Rajasthan. In its degenerate form, the loop patterns, at times, may appear as a wavy design, but when carefully drawn in combination, the two patterns are always distinguishable (Figs. 5 : 39, 5 : 41, 5 : 43). The looped lines are drawn sometimes suspended from a horizontal line (Fig. 5 : 42) and quite often above the line (Figs. 5 : 37, 5 : 2). To make the design more effective the enclosed space in the loops may be filled with colour (Fig. 5 :9), or the background may be painted so that the unpainted portion forms the loop pattern (Fig. 5 : 10). In the Punjab, sometimes the loops are not drawn in continuous line. Several loops are drawn free at a distance but always interlinked by oblique lines (Fig. 5 :47). When several bands of continuous loops are treated, the design is often known as fish-scale pattern. In Kutch, we have examples of fish-scale pattern, but in this case the rows of loops tend to have angular form (Figs. 5 :15, 5 :18).

(iv) *Lozenge patterns.* Some examples of lozenge patterns have been recorded from Kutch and Rajasthan. In Kutch, the lozenges are drawn connected in a row (Figs. 5 : 16, 5 : 32, 5 : 34, 5 : 35) and also unconnected with feathers (Figs. 5 : 15, 5 : 26). From Rajasthan we have interesting examples of lozenge pattern drawn in combination with river pattern which suggests its origin from interlacing wavy lines (Figs. 5 : 41, 5 : 43). Sometimes, when the lozenges are not drawn in a row, they form a cluster and presents an interesting design (Fig. 5 :43).

(v) *Triangle patterns.* There are several ways to form triangular pattern. The triangle may be independently drawn above or below a horizontal line (Figs. 5 : 11, 5 : 27, 5 : 53, 5 : 42). The space within the triangle may be hatched by rows of horizontal (Fig. 5 : 11) or vertical lines (Fig. 5 : 33). The triangles may grow out of intersecting loops (Fig. 5 : 13) or arrangement of diagonals between two straight line borders. In Rajasthan, opposed triangles are very favourite drawings in which sometimes the reverse triangles in a pendant row are solid (Fig. 5 :11) or hatched by vertical lines (Fig. 5 :33).

(vi) *Grid patterns.* In the painted pottery designs, a pattern formed by the grid of vertical and horizontal lines appears quite

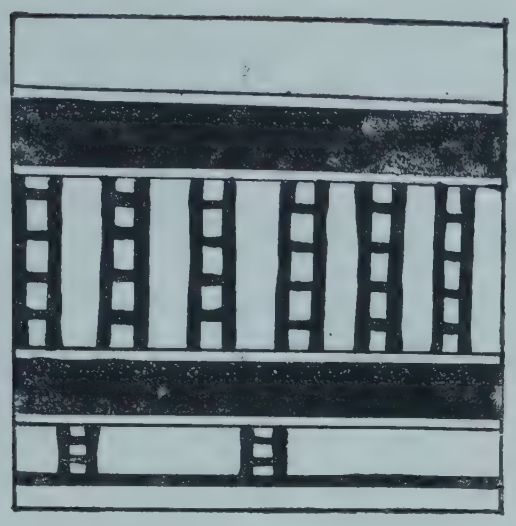


Fig 5 : 4
Straight line borders.
Ladder designs

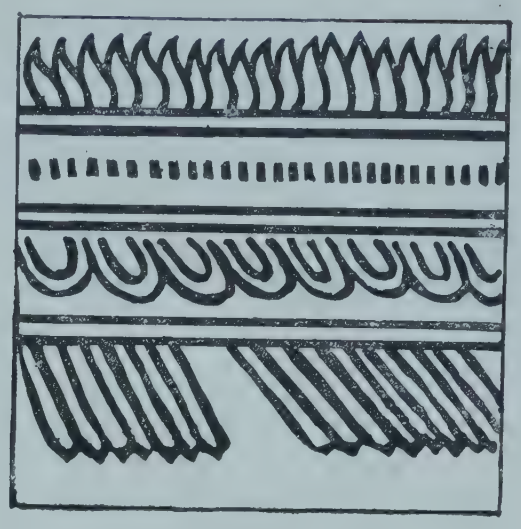


Fig 5 : 5
Straight line borders in combination with many complex designs

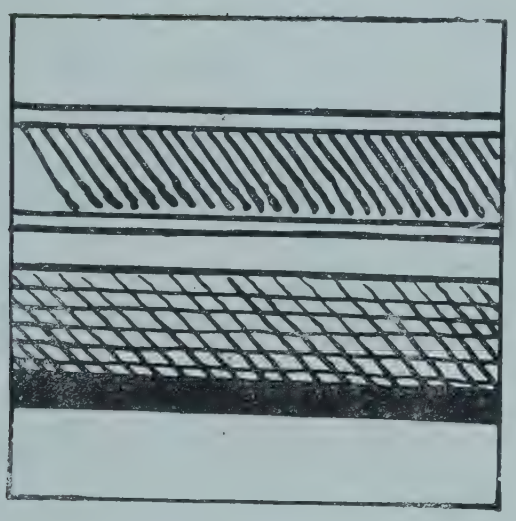


Fig 5 : 6
Verticals or diagonals along horizontal lines as a space filler

Fig 5 : 7
Straight multiple continuous horizontal lines

Fig 5 : 8
Naturalistic patterns and straight line borders in combination with many complex designs

Fig 5 : 9
Straight line borders in combination with complex design

frequently in Kutch and Rajasthan. The most common of the grid pattern is the checker design. In this design, the check may be simply drawn by a network of horizontal and oblique vertical lines (Fig. 5 : 6). Sometimes, in the check pattern, the alternate squares may be hatched by horizontal and vertical lines and the unhatched squares decorated by chevron designs (Figs. 5 : 22, 5 : 36). In grid patterns, we may also consider the network of opposing diagonals (Fig. 5 : 20).

(vii) *Naturalistic patterns.* Among the painting designs, the naturalistic patterns have not been left untouched by the potters of the Punjab, Rajasthan, and Gujarat. Plants (*jhar*) and floral (*pan-phool*) motifs are quite popular. In plant motifs, though it is not always possible to identify them botanically (Figs. 5 : 40, 5 : 43), the potters of Kangra Valley and Himachal Pradesh most widely paint pine trees. Creepers (*bel*) have also been found painted by the Kutch potters (Fig. 5 : 8).

(viii) *Animal design.* Instances of depicting animals on pottery are not many. Quadrupeds, or horned animals were found nowhere on the painted pottery. But birds in their naturalistic as well as symbolized form are favourite motifs of Rajasthan potters. Peacock (*mor*), peahen (*dhelare*), and sparrow hawk (*papaiya*) are pet birds to be painted on pottery (Fig. 5 : 30). The birds are often shown seated on a tree. In symbolized form, the chevron designs (Figs. 5 : 22, 5 : 36) appear to be quite popular in Kutch. Both angular (Fig. 5 : 24) and cursive forms (Fig. 5 : 39) represent the flying bird. In Rajasthan, symbolized form of the flying bird is technically known as *panjio*. Snakes are not usually painted on the pot. But scorpions have been found painted on many pots.

With many potters of Rajasthan and Gujarat, there appears to be some sort of taboo in painting animal designs. Since pots are painted before firing, some Hindu potters consider the painting of animal motifs on the pots as equivalent to burning a living animal in the kiln. The Muslim potters take it highly irreligious to paint a living object. For these reasons, excepting the stylized forms of birds, animal designs are largely absent.

(ix) *Miscellaneous.* In Rajasthan, a geometrical leit-motif called *chaupat* (Fig. 5 : 3m) is painted on large jars as an independant decorative unit without any combination of designs. A single block of four squares is arranged in which one opposite pair of squares is filled by vertical wavy lines and another hatched by horizontal lines crossed by diagonals. The straight lines of the

Fig 5 : 10
Straight line borders in combination with complex designs

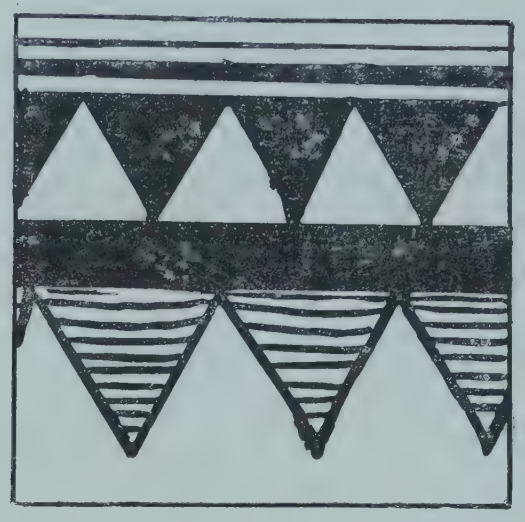


Fig 5 : 11
Traingle pattern : hatched by rows of horizontal lines

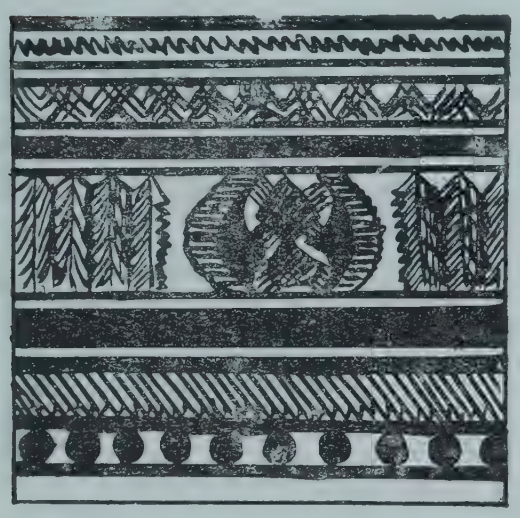


Fig 5 : 12
Straight line borders in combination with many complex designs

Fig 5 : 13
Straight line borders in combination with complex designs

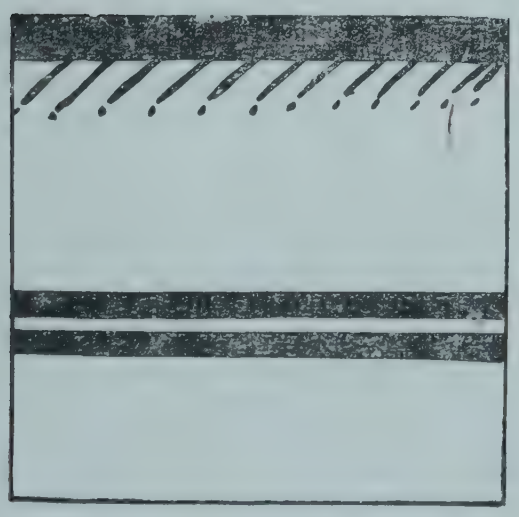


Fig 5 : 14
Straight line borders in combination with complex designs

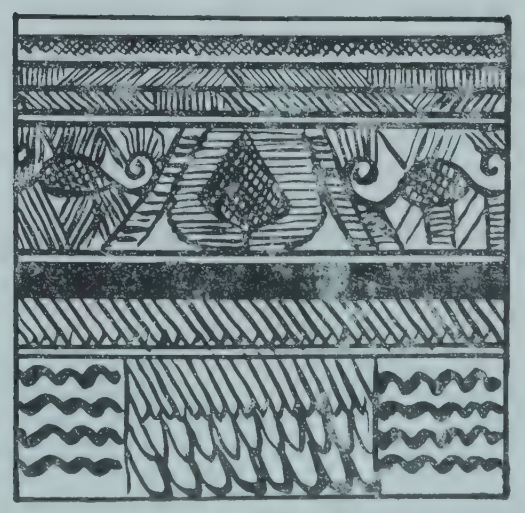


Fig 5 : 15
Straight line borders in combination with many complex designs

squares grow into a figure with legs, hands and head. The term *chaupat* appears to be a corrupt form of a Sanskrit term *chatush-pat* or four squares. Though the potters could not bring any meaning to this design, but it appears to be some sort of Tantric symbol.

Another symbol which is quite frequently used in painted pottery consists of two vertical lines cut by two horizontal lines (Fig. 5 : 23). This symbol is used in typography for 'space out', or a sign in English music to 'raise' the notes on the staff. It is also used as a house in a symbolical game called *kata-kuti* which is quite popular among school children.

The ladder design (Fig. 5 : 4), in which two vertical lines are cut by a series of small horizontal lines, forms an interesting pattern in painted pottery. In Figure 5 : 31, the verticals as well as horizontals in the ladder are obliquely drawn.

A mathematical symbol used for plus is quite often painted in Rajasthan (Fig. 5 : 37). The potters attribute this to a star motif. In Figure 5 : 38, the boldly hatched vertical and horizontal lines cut each other at right angle inside a circle. Another pair of comparatively thin vertical and horizontal, transverse to each other, make the representation of star little complicated.

The five-forked figure drawn below the star motifs (Fig. 5 : 37) is supposed to be a sacred symbol, whose identity has been lost. But it resembles a trident with a base drawn in an inverted fashion.

Distribution

The technique of painting on the pots before firing is largely confined to the Punjab, Rajasthan, and Gujarat. Instances of such paintings have been found also in certain regions of Madhya Pradesh. Some potters of Rajasthan are settled in Aligarh and Nainital in Uttar Pradesh and follow their traditional technique of painting. Similarly, the potters of Gujarat work in Nasik and many other places in Maharashtra. But these stray cases obviously deny the relationship of the technique with the native potters of Uttar Pradesh and Maharashtra. The technique of painting pots before firing, however, does not extend beyond the Jamuna in the east and the Narmada in the south. Even the potters of Madhya Bharat claim Rajasthan as their original home. And the *Bhats* (the genealogists) of Rajasthan still continue to maintain their professional relationship with the potters of this region and trace out the migration of the potters from their genealogical records.

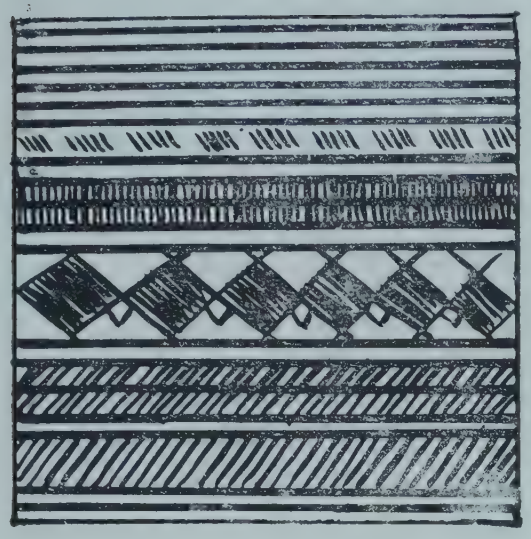


Fig 5 : 16
Closely grouped verticles or diagonals painted along horizontal lines. Lozenge pattern

Fig 5 : 17
Straight line borders in combination with complex design

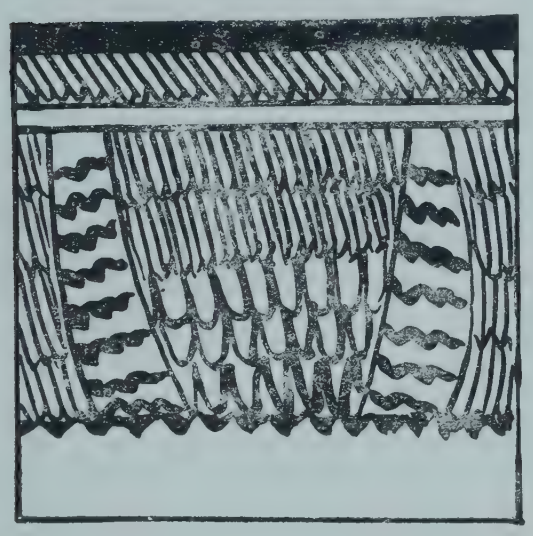


Fig 5 : 18
Straight line borders in combination with many complex designs

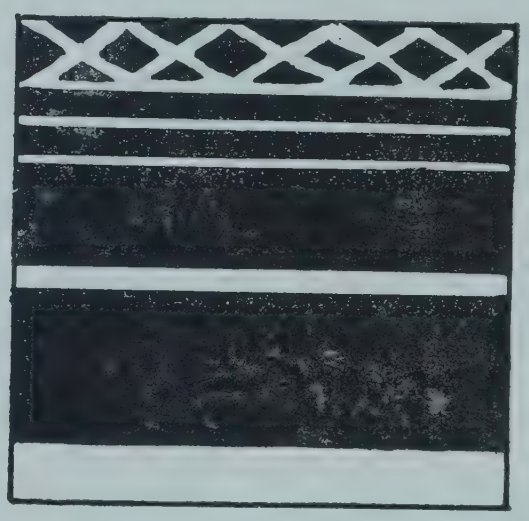


Fig 5 : 19
Straight line borders in combination with complex designs

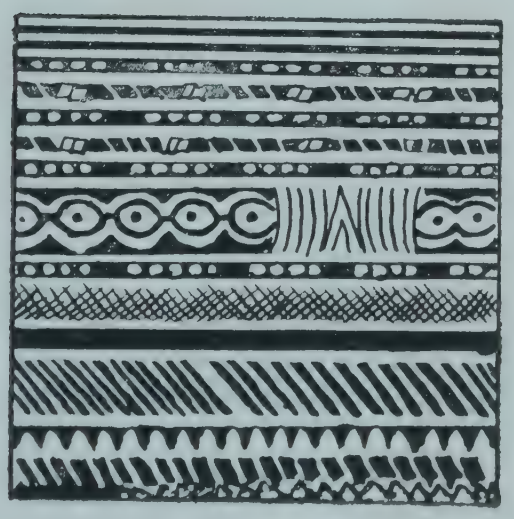


Fig 5 : 20
Verticles or diagonals along horizontal lines together with complex designs. Grid pattern

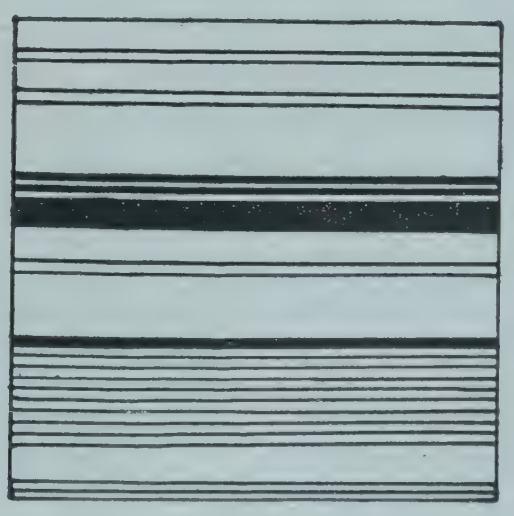


Fig 5 : 21
Straight multiple continuous horizontal lines

PAINTING AFTER FIRING

Techniques

Pigments. For painting after firing, either organic or inorganic colour can be used. Therefore, the potter has the freedom to choose any colour he likes, and we find comparatively large varieties of colour used on fired pots. Black, red, yellow, green, grey, blue, orange and white are usually preferred.

Black

Generally, soot (lamp black) or powdered charcoal is used for black colour. Sometimes, black iron oxide is also available to prepare black pigment.

Red

For red colour, vermilion (mercuric sulphide) is largely used. Geru (ruddle) is also used for this colour.

Yellow

Turmeric (*haldi*) finely divided and mixed with little quantity of water makes a shining yellow colour.

Green

Various kinds of green leaves are used for making green colour. In Bihar, bean leaves and betels are largely used for preparing green colour.

Grey

By mixing black and yellow colours, the potter obtains their required grey colour. Sometimes, catechu is also used for grey.

Blue

Blue colour is invariably made of indigo.

Orange

A mixture of red and yellow becomes a delightful orange colour.

White

White colour is produced by rice powder in Bihar and by chalk (calcium carbonate) elsewhere in the country.

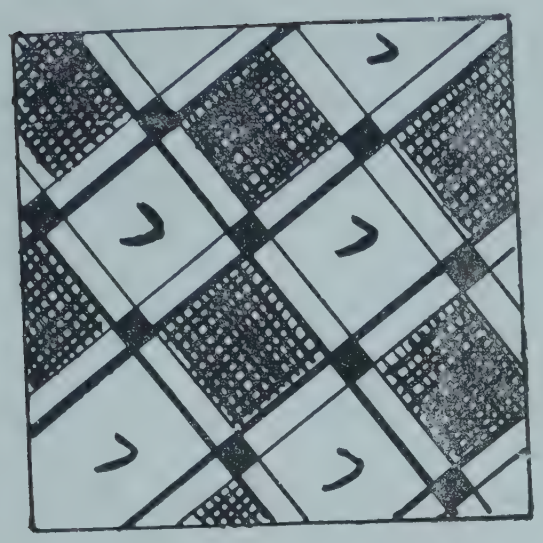


Fig 5 : 22
Animal design : symbolized form

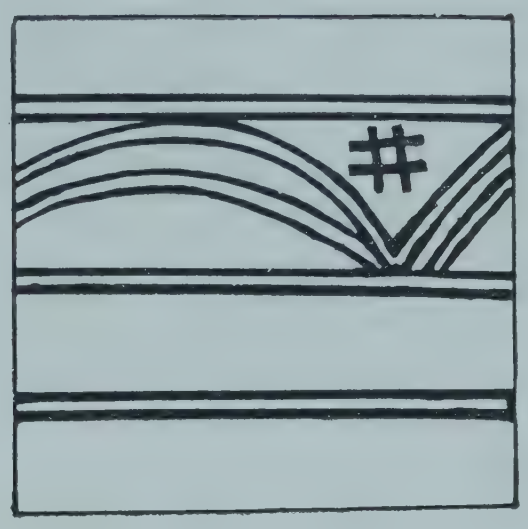


Fig 5 : 23
Two vertical lines cut by two horizontal lines

Fig 5 : 24
Animal design : angular form

Fig 5 : 25
Designs on painted pottery

Fig 5 : 26
Verticals or diagonals along horizontal lines as space filler

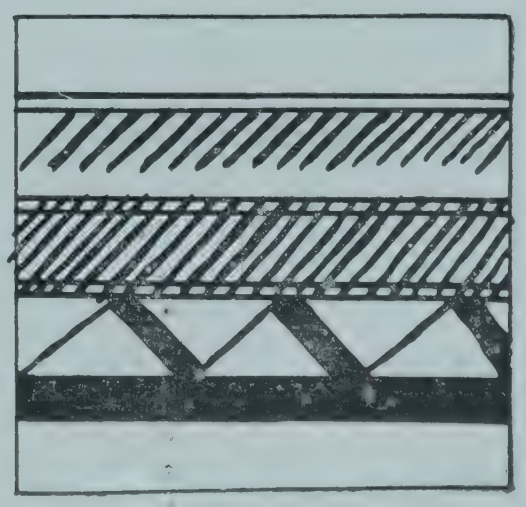


Fig 5 : 27
Verticals or diagonals along horizontal lines as space filler

Preparation

The pigments may be prepared directly either in plain water or in a solution of gum. But the indigenous method of preparing colour has largely disappeared, and, nowadays, chemical paints or colours, easily available in the market, are used in great quantity. In the Punjab, the pigment is prepared by the following method :

Colour (chemical)	2 parts
Glue (*saresh*)	1 part

The two ingredients are boiled in water to the required consistency. Sometimes, lac (*danalakh*) is also added to these ingredients in the proportion of glue mixed. The white colour is prepared by a mixture of chalk (*khariya*) and gum (*chimba gond*). The ingredients dissolved in water are kept overnight for proper consistency. The colour is stored in an earthen cup. Whenever the pigment is prepared by the mixture of glue, the cup containing colour is always kept on the fire at the time of use, or else it will be thick and hard.

Oil paints or varnishes are also used by some urban potters, but here we will not consider them.

Tools

The paint brushes are the only tool used for painting, and they are not different than those already described for painting before firing.

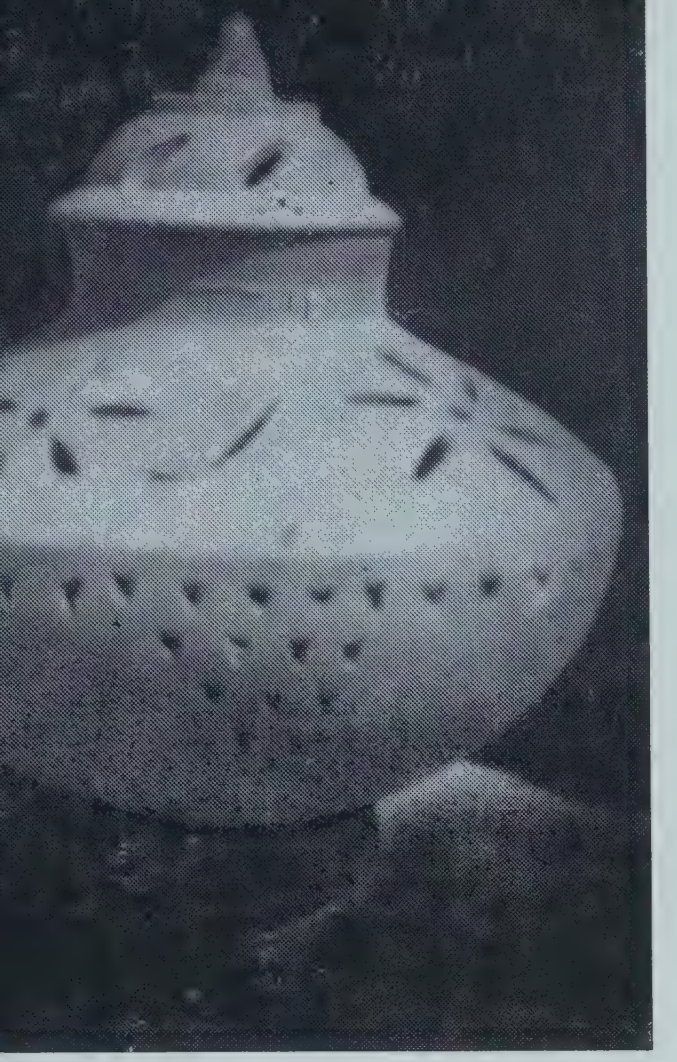
Mechanics of paintings

Painting is done on the fired pots. Sometimes, when white background is required, the entire pot may be dipped two to three times in the dye prepared out of chalk and gum. Other details of paintings do not vary from those discussed earlier for the mechanics of paintings before firing. The small articles may be painted while holding it in the left hand. The potter takes utmost care not to retouch the paints while wet, because it may produce a blot.

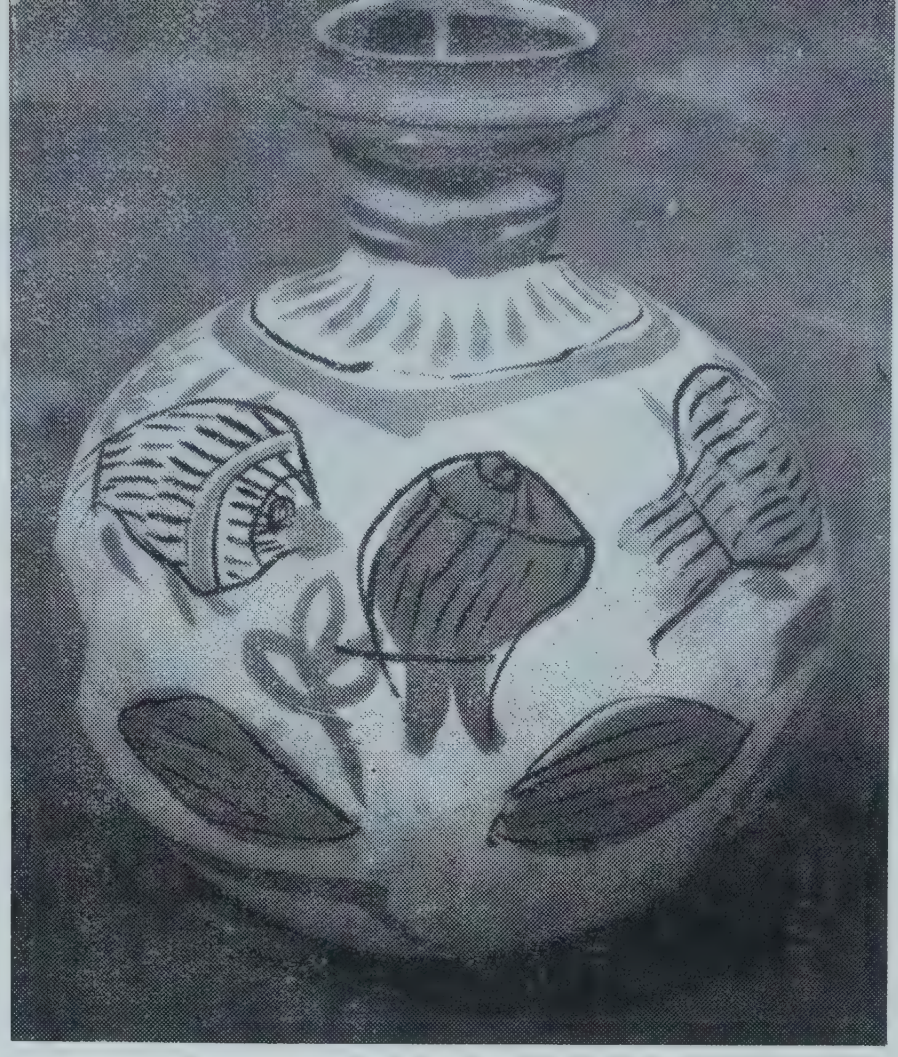
The painting is done both by men and women.

Designs

Excepting toys which are painted sheerly out of aesthetic sense, the earthen pots are often painted for specific ceremonial or religious purposes. And, therefore, the designs made on these pots are sometimes different. As the pots are painted after firing,



Ceremonial perforated pot from Gujarat



Painted ceremonial pot from Darbhanga : Bihar
(Painted after firing)

Painted ceremonial pot from Darbhanga : Bihar
(Painted after firing)

A clay figure of Shio-Parvati (
deities) from Darbhanga : Bihar

Terracotta figure of Hanuman a
Shankar (the Hindu deities) fro
Darbhanga : Bihar

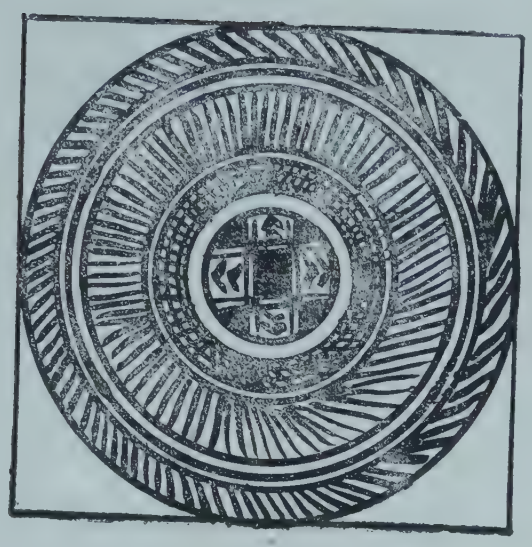


Fig 5 : 28
Designs on painted pottery

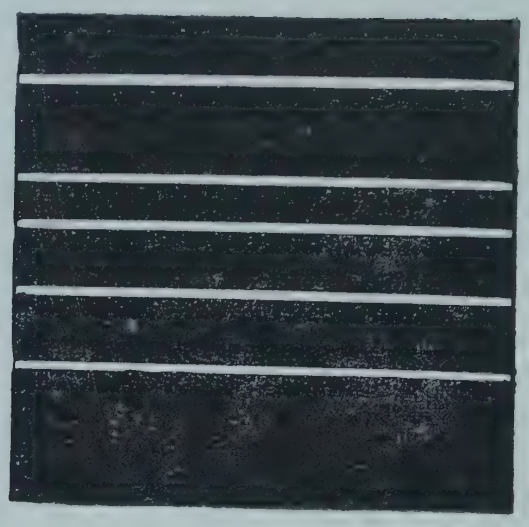


Fig 5 : 29
Straight multiple continuous horizontal lines

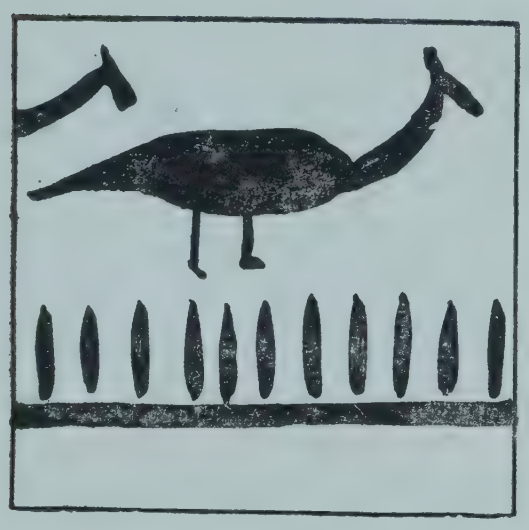


Fig 5 : 30
Animal design

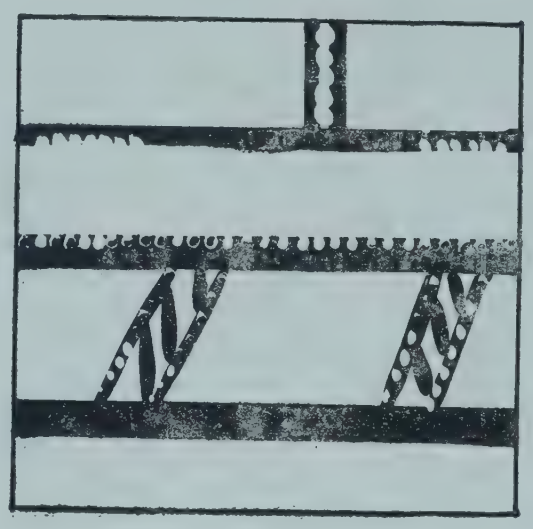


Fig 5 : 31
Dots or dashes in the patterns

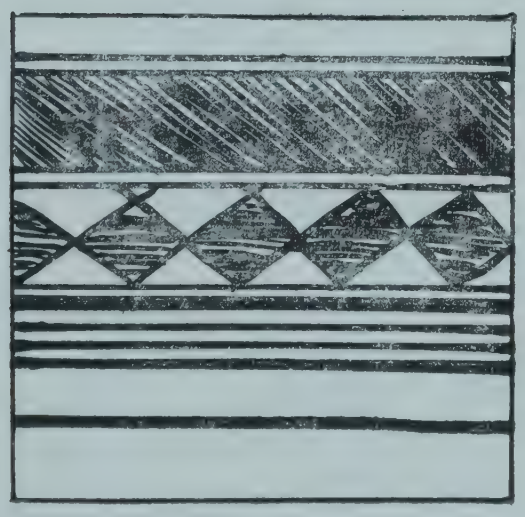


Fig 5 : 32
Lozenge patterns

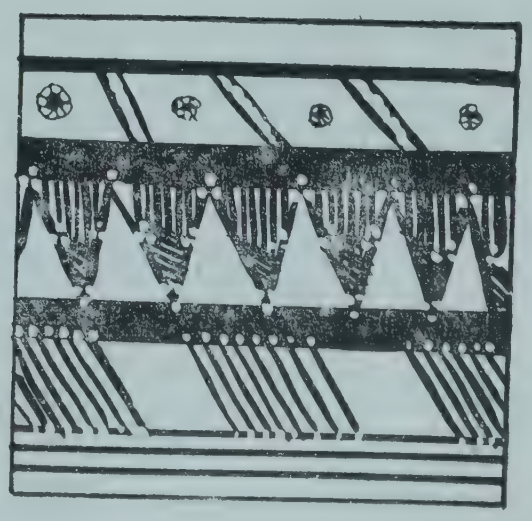


Fig 5 : 33
Triangle patterns :
hatched by rows of vertical lines
Dots or dashes in the patterns

the potter has an advantage to treat them with polychrome scheme.

The painting designs made on the ceremonial pots are either geometrical or naturalistic. In geometrical pattern, straight line border (Figs. 5 : 48—5 : 53), wavy line (Figs. 5 : 48—5 : 49, 5 : 52), diamonds (Figs. 5 : 48—5 : 52), grid designs (Fig. 5 : 53) and triangle patterns are quite frequently used. The triangles may be filled with colour either half (Fig. 5 : 55) or full (Fig. 5 : 54) or may be alternately filled (Fig. 5 : 55). There may be rows of opposed triangles (Fig. 5 : 53), or the apices of the triangles may be arranged horizontally in a row (Fig. 5 : 48). The grids may be formed by opposing diagonals (Fig. 5 : 55). The diamonds may be alternately filled (Fig. 5 : 55). The wavy designs are drawn both vertically (Fig. 5 : 50) as well as horizontally (Figs. 5 : 48, 5 : 49, 5 : 52). Straight line borders are used for dividing the designs into registers or pannels, and they may be closely hatched by oblique lines (Figs. 5 : 48, 5 : 51). The geometrical designs may sometime give a stylized form of floral pattern. A cluster of diamonds may form the petals of a flower (Fig. 5 : 54). In the naturalistic pattern, horse, elephant, fish, birds, basil-plant, etc., may be painted. On a ceremonial pot, a trident motif (sectarian mark on the forehead) may also be painted (Fig. 5 : 55).

Distribution

The tradition of painting pots after firing is widely spread over the country. But it is only for the ceremonial use that the pots are treated with such paintings. On marriage occasions, gifts of food are exchanged between the bride and the groom's house in a painted pot. The custom is widely prevalent in northern and eastern India. In South India, among the higher castes small painted pots are used as representatives of certain Brahmanical gods at the time of marriage. Even in those areas where all the daily-use pots are painted before firing, the ceremonial pots are often painted after firing. For instance, in Madhya Pradesh and Rajasthan, the gift pots for the brides or the grooms are always painted white after firing.

THE ART OF PAINTING POTS

The art of painting pots which is known as *boote pawana* or *likhana* in the Punjab, *madana* or *chitarna* in Rajasthan and Gujarat, and *chitana* in Himachal Pradesh, appears to be governed by a great tradition of the past. Even in areas where this is unconven-

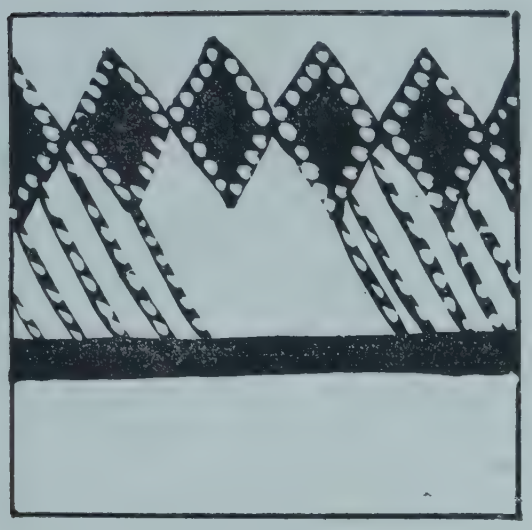


Fig 5 : 34
Dots or dashes in lozenge patterns

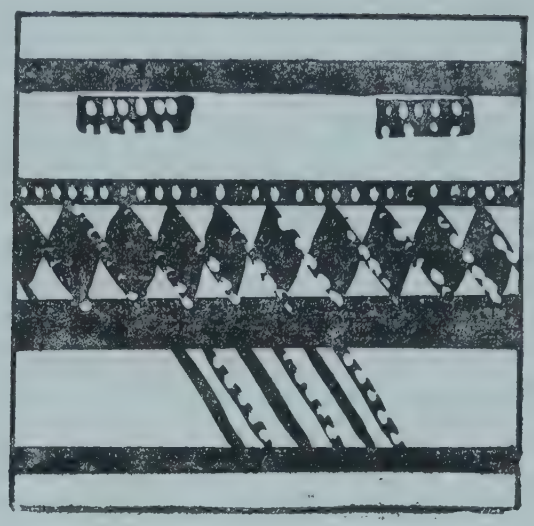


Fig 5 : 35
Dots or dashes in lozenge patterns

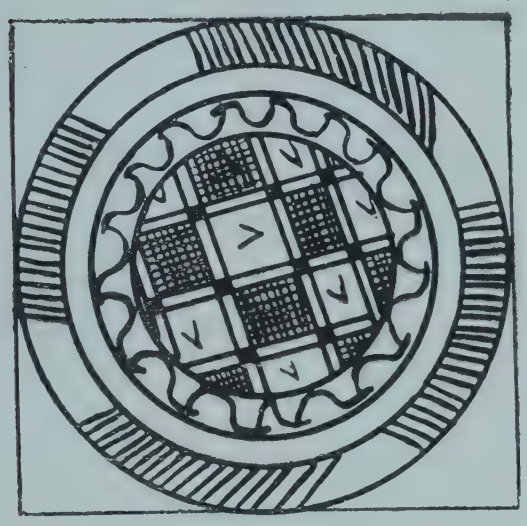


Fig 5 : 36
Animal design : symbolized form

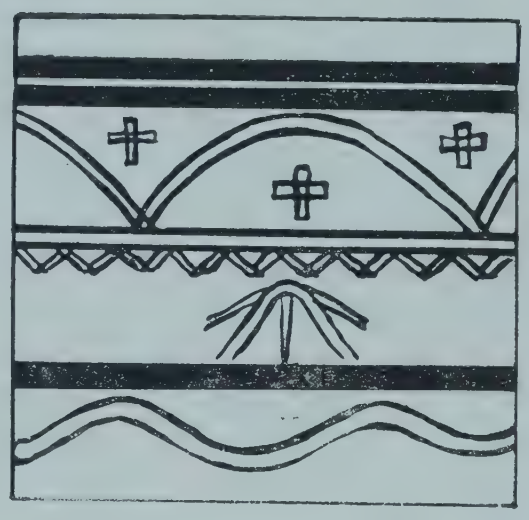


Fig 5 : 37
A mathametical symbol used for plus

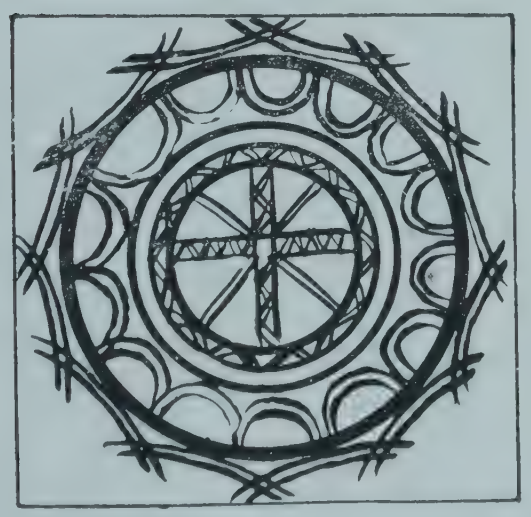


Fig 5 : 38
Boldly hatched vertical and horizontal lines cut each other at right angle

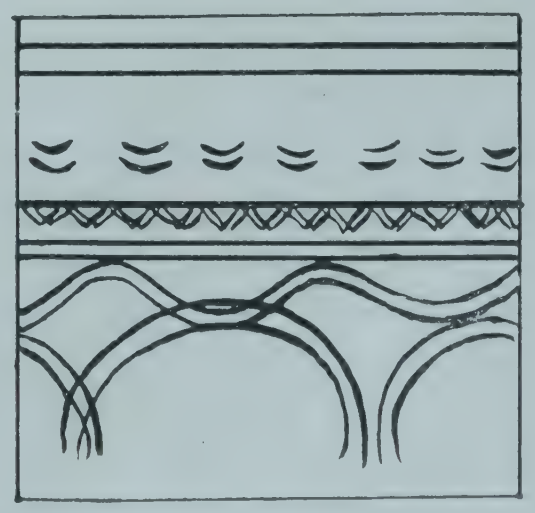


Fig 5 : 39
Animal design : cursive form

Fig 5 : 40
Naturalistic patterns

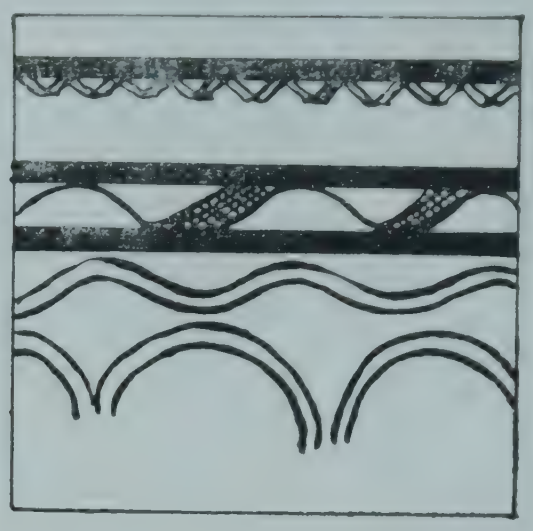


Fig 5 : 41
Wavy lines and combination of loop patterns

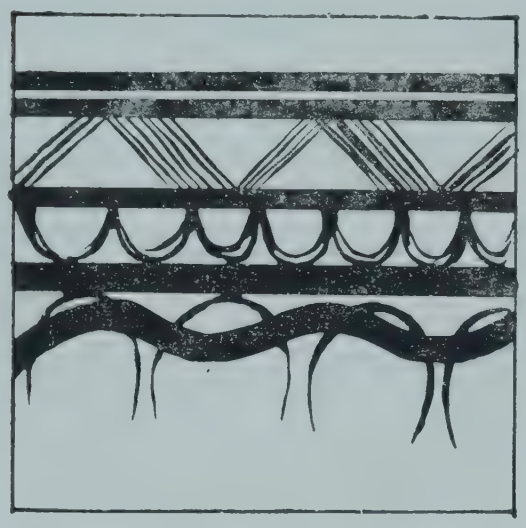


Fig 5 : 42
Loop lines suspended from horizontal line

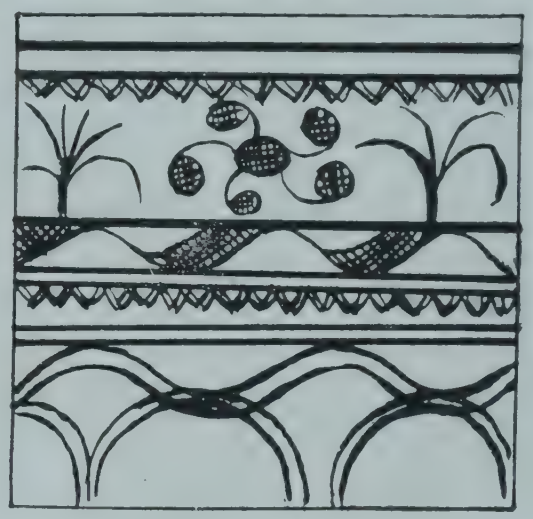


Fig 5 : 43
Naturalistic and loop patterns

tional for ordinary pots, the ceremonial pots are essentially painted. In Orissa, a potter explained the magico-religious significance of painting by saying that the evils associated with the unpainted pots are done away with by painting. The painted pots are also immune to defilement or touch-pollution which is an inextricable part of commensality.

The modern designs on the painted pots of Rajasthan and Gujarat suggest that the Indus Valley technique of painting persists to the present day. Some of the geometrical designs like scale pattern, wavy lines, grids and chevron patterns resemble closely the Mohenjo-Daro and Harappan designs. Close similarities between modern geometrical paintings on Kutch pottery and geometrical drawings in one of the caves of Bagh can be established. But since such comparisons form itself an independent work of research, we will not attempt to go beyond its frontiers in our present work.

Fig 5 : 44
Straight multiple continuous horizontal lines

Fig 5 : 45
Closely grouped vertical or diagonals painted along horizontal lines

Fig 5 : 46
Wavy lines between horizontal straight lines

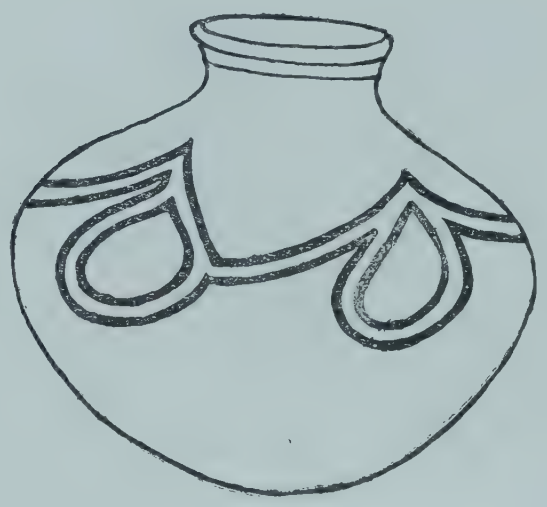


Fig 5 : 47
Several loops interlinked by oblique lines

It is very much disappointing to find the tradition of painting pots, especially before firing, gradually dying. The decay appears to be mainly due to two reasons—non-availability of mineral pigments and a general fall in the trade. At many places in Madhya Bharat and the Punjab, the potters expressed their difficulties in the procurement of colouring materials. Inorganic colour like manganese-dioxide is exported from Ajmer and Alwar to various places in the Punjab. Similarly, Ajmer and Udaipur feed the necessity of colour to the potters of Madhya Bharat. Obviously, Rajasthan and Kutch appear to be the home of mineral colours best suited for pottery paintings. The sharp decline in the sale of pottery articles and the lack of patronage to this art have given rise to the discontent among the potters. One of the

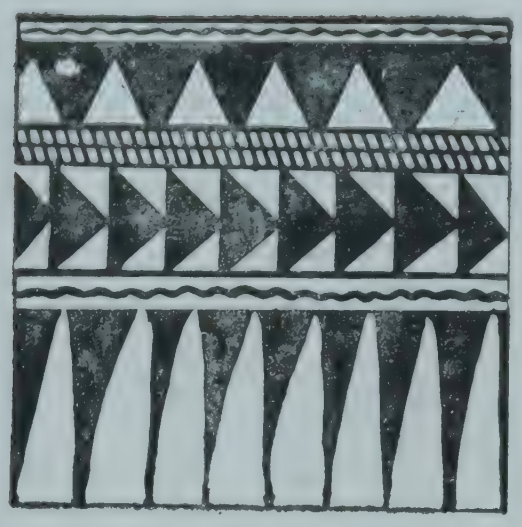


Fig 5 : 48
Wavy lines in geometrical patterns. Triangles arranged in a horizontal row

Fig 5 : 49
Wavy lines in geometrical pattern drawn horizontally

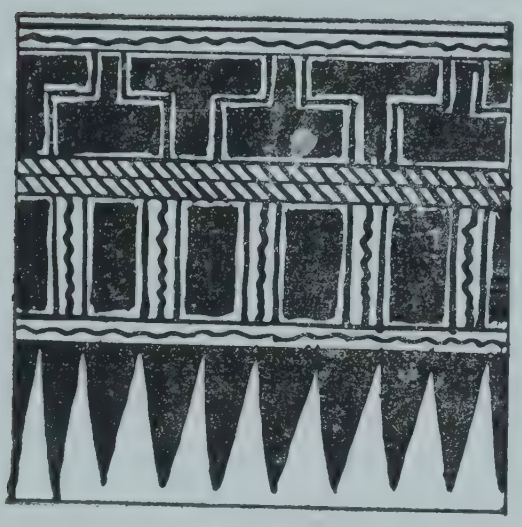


Fig 5 : 50
Wavy designs drawn vertically

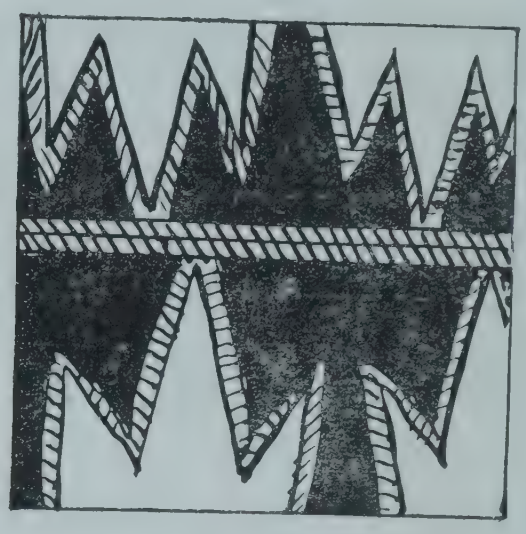


Fig 5 : 51
Closely hatched by oblique lines

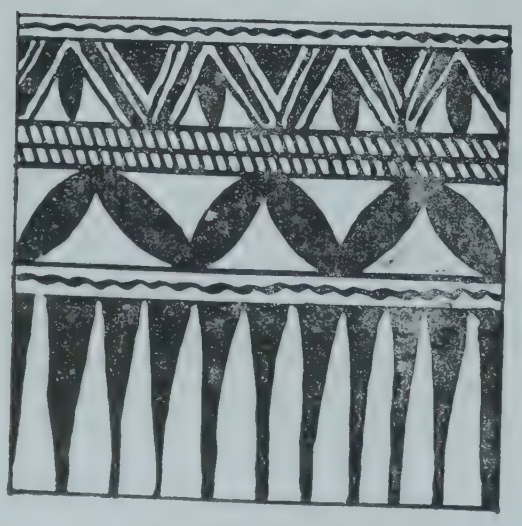


Fig 5 : 52
Wavy line in geometrical pattern

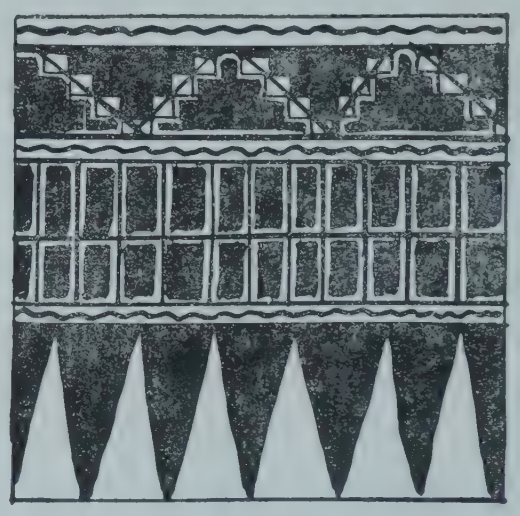


Fig 5 : 53
Grid designs in geometrical pattern

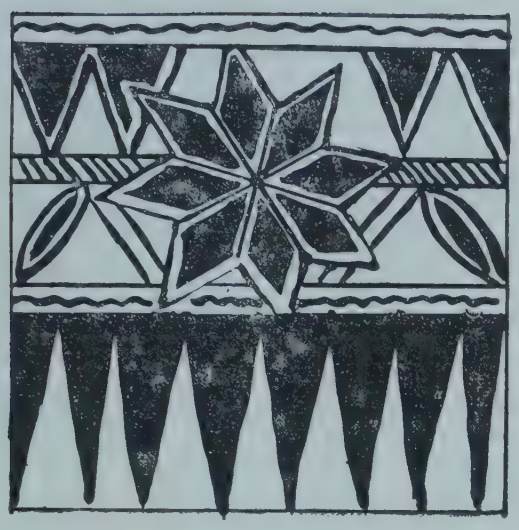


Fig 5 : 54
Triangles and cluster of diamonds

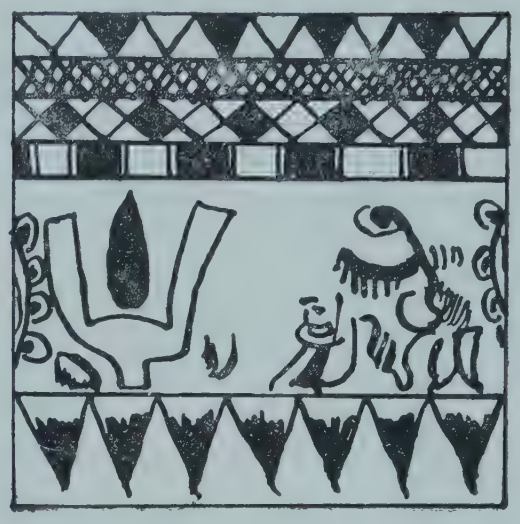


Fig 5 : 55
A trident motif

potters of Jullundur remarked, 'Whether the pot is painted or simple, it fetches the same price ; why then labour so much for no benefits ?' In Rajasthan, the potters looked back upon the days of the Rajas who used to pay fabulous price for choicest pots. They are of the opinion that in modern days there is no reward for the pains they take in painting the pots. In Kutch, when the potters were asked as to why they paint even the bottom of the pot which can easily be ignored, they remarked that all the pots must be painted fully or else the customers will refuse to buy them. Thus, it appears that it always does not depend upon the potters to choose painting, but more often it is the customer who presses the need of painted pottery. If we consider in this light the distribution of painted pottery (painted before firing) which goes no further east of the Jamuna and south of the Narmada, we think, we are raising, by implication, the question whether this has any relationship with the painted pottery of Harappan culture. The latter has a distribution which coincides to some extent with the present distribution of painted pottery in India.

ASPECTS OF POTTERY

Besides the technical aspect of manufacture, when we examine a pot, we consider its three main aspects, namely, the forms, the surface treatment and the use. Though the main object of our present work was to find out the various techniques applied in the manufacture of pottery, we have tried to collect some information on other aspects which appeared to have a significant bearing upon the techniques of manufacture and traditions. We may discuss them here in this chapter.

FORMS

A discussion on the forms of pottery on an all-India level in a few paragraphs will be highly incomplete and inconclusive. There are almost innumerable forms of pottery, which themselves constitute an independant subject of research. We can consider here simply the methods by which the potters classify different pottery vessels.

The appearance of a vessel is determined by the general form of the body, its proportions, and also the accessories. Examining a finished pot and a pot under making are two different things with different approaches. In the following pages, we will begin with the act of throwing.

When a potter begins throwing a pot on the wheel, he has in his mind a definite outline of the pot he wants to make. But usually the pot is never completely shaped on the wheel, and it has to go under the process of beating and enlarging. Therefore, it is difficult to know the shape of the pot just detached from the wheel. And it is for this reason that all the pots in this embryonic state are given a common name irrespective of different types that may grow in the process of beating. In Maharashtra, the pots in this stage are called *murawat*, in Rajasthan it is *marat*, and in Oriya the term *panda* is used. But, one thing which the potter keeps in his mind for different pots at the time of throwing is the size, and accordingly he maintains the thickness of the wall so as to enlarge the pot in future. Another distinction which the potter maintains for different pots under the process of throwing, is the forms of the rim or the neck. The rim and the neck retain their original form, while the base, body and the shoulder of the pot undergo a change when beaten. It is for this reason that most of the potters lay the classification of pots on these two factors—the geometrical size and the conventional pattern of the rim or the neck. Besides this technical consideration, the potter's classification of the

finished pots depends upon the use which is to be made of the vessel.

To go into the above proposition we may take the classification and designation of some of the vessels made by the potters of Bhadrawati (Chanda : Maharashtra). And for this purpose, we may use their terminologies. The potters of Bhadrawati classify their wheel-thrown vessels into six broad categories. These are further sub-divided into several varieties. Each species of pot is referred to along its generic name, as a man pronounces his own name after his father's name. These classifications may be arranged as follow :

Main Division or Generic Name	Sub-Division or Species
Madaka	1. *Madaka*
	2. *Mathan*
Heltura	1. *Hel*
	2. *Tura*
	3. *Gund*
	4. *Charwari* or *Baneri*
Tauli	1. *Charwari*
	2. *Tauli*
	3. *Gundi*
	4. *Ghalli*
Barbuj	1. *Barbuj*
	2. *Doyana*
	3. *Tapela* or *Jam*
	4. *Ganj*
Chitaki	1. *Chitaki*
	2. *Ganj*
	3. *Tapela*
	4. *Doyana*
Barpiw	1. *Barpiw*
	2. *Doyana*
	3. *Ganj*
	4. *Tapela*

Madaka is about 50 cm high, 1.20 metre in circumference at the body, and 17.5 cm wide at the mouth. *Heltura* is one and a half time smaller than *Madaka, Tauli is* three-fourths times smaller than *Heltura, Barbuj* is half of *Tauli, Chitaki* half of *Barbuj,* and *Barpiw* is almost half of *Chitaki.* All these vessels have a conventional size to distinguish. But the different species of pots, classified in a group, are distinguishable mainly on the patterns of their rim. The rims of *Hel* (Fig. 6 : 3), *Tura* (Fig. 6 : 4), *Gund*

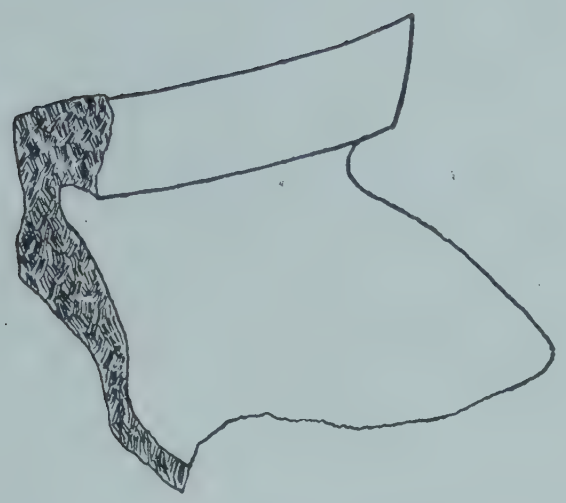


Fig 6 : 1 Rim of a *Madaka*

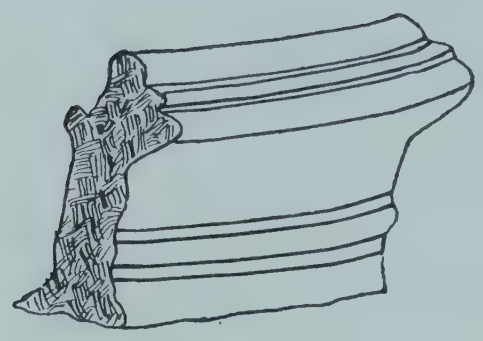


Fig 6 : 2 Rim of a *Mathan*

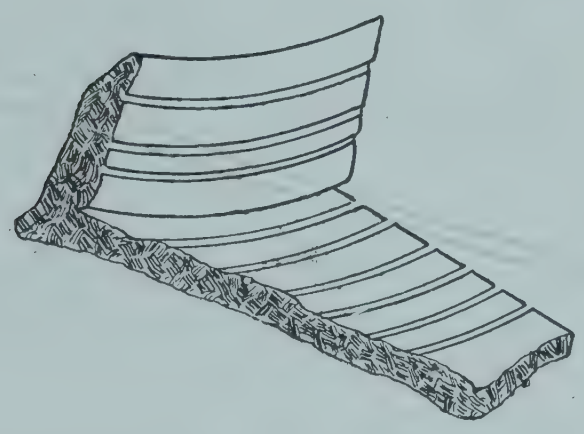


Fig 6 : 3 Rim of a *Heltura* : *hel*

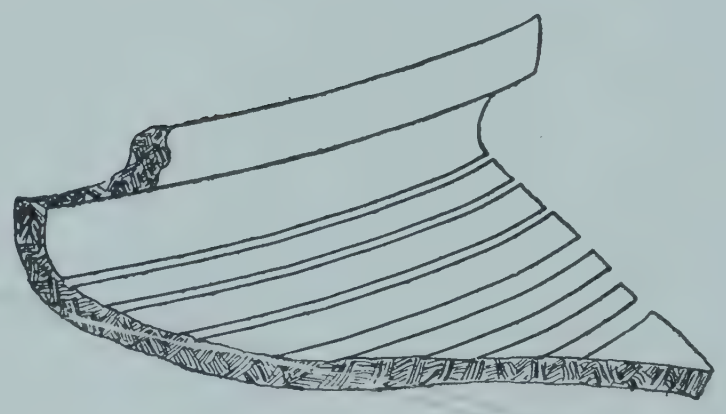


Fig 6 : 4 Rim of a *Heltura* : *tura*

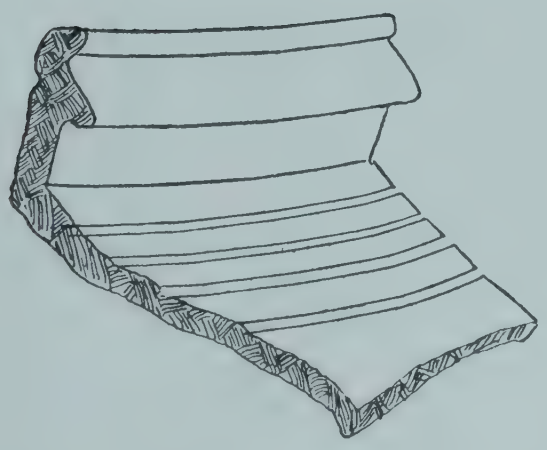


Fig 6 : 5 Rim of a *Heltura* : *gund*

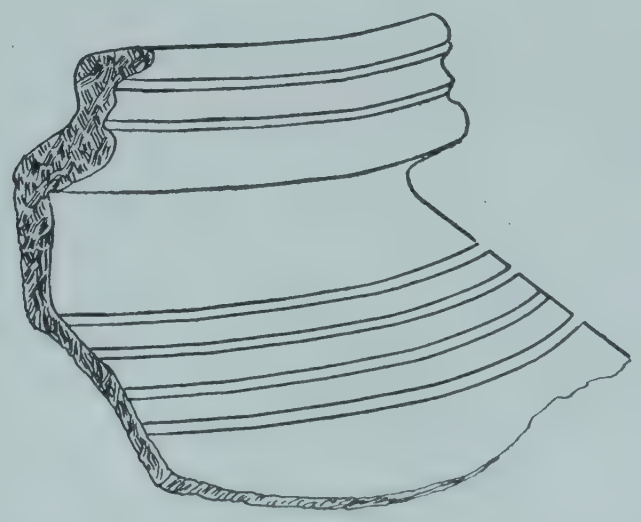


Fig 6 : 6 Rim of a *Heltura* : *charwari*

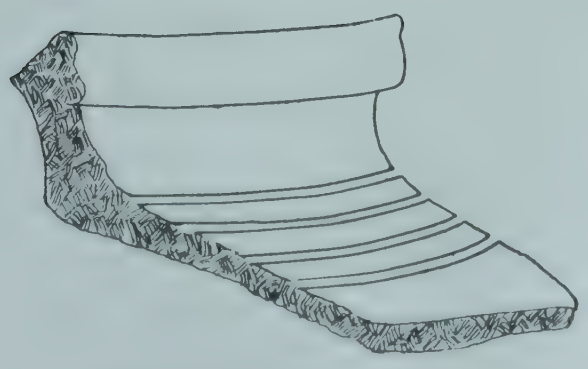


Fig 6 : 7 Rim of a *Tauli*

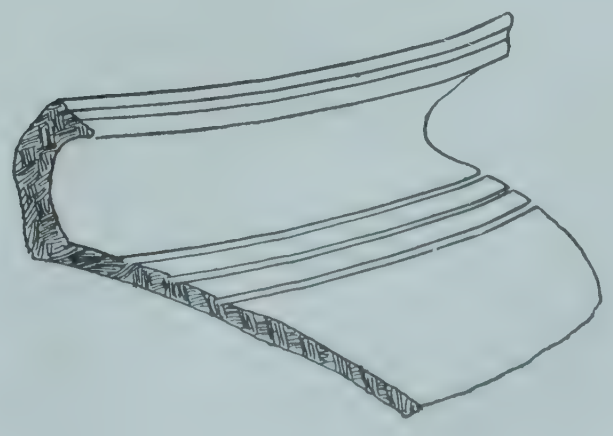


Fig 6 : 8 Rim of a *Tapela* or *Jam*

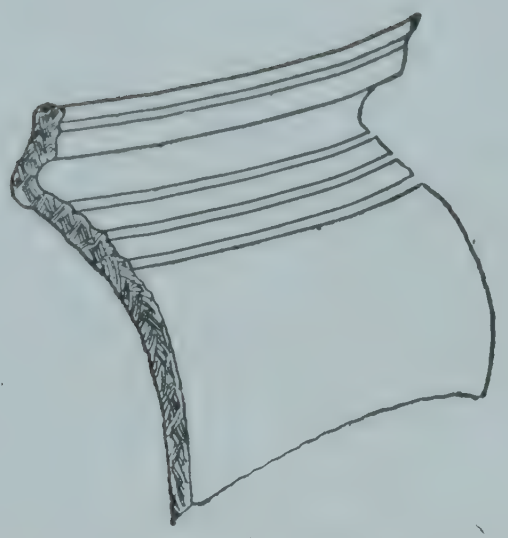


Fig 6 : 9 Rim of a *Chitaki* : ganj

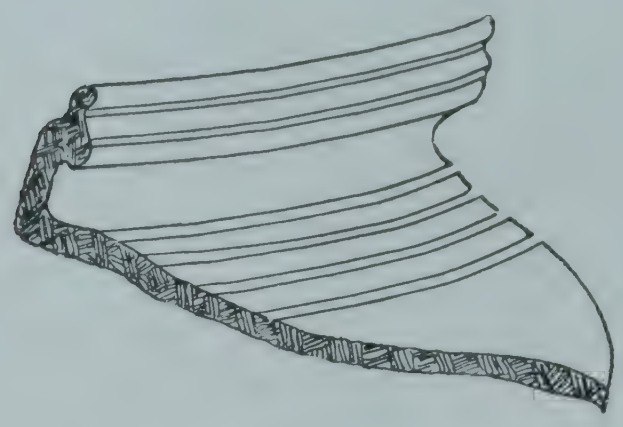


Fig 6 : 10 Rim of a *Barpirw* : ganj

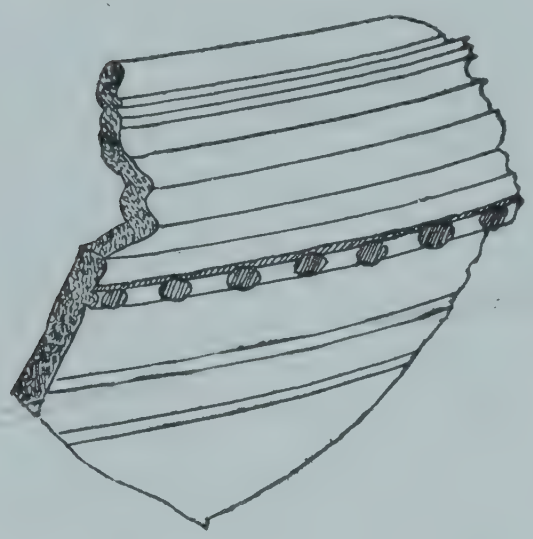


Fig 6 : 11 Rim of a *Gangal*

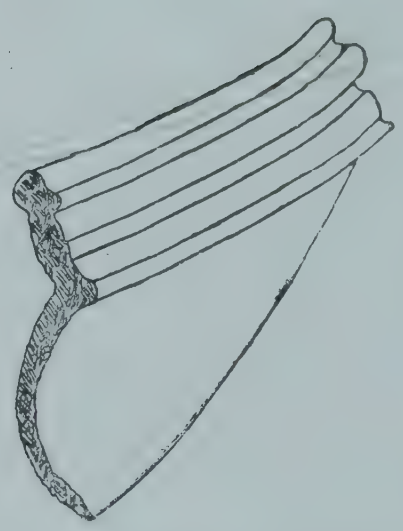


Fig 6 : 12 Rim of a *Sanki*

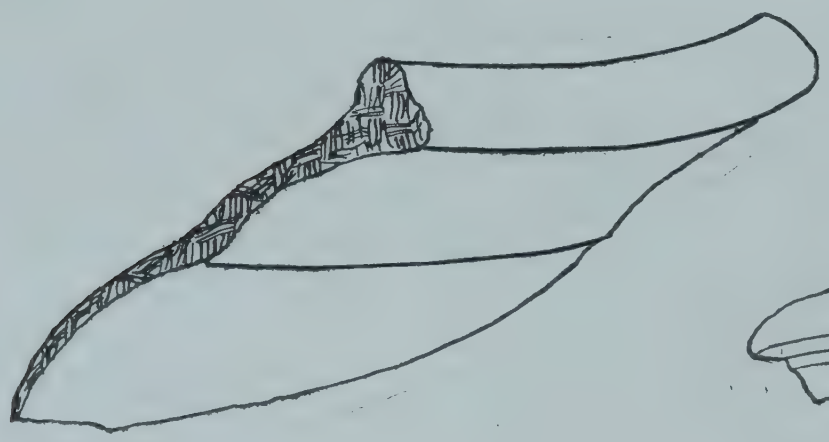


Fig 6 : 13 Rim of a *Parel*

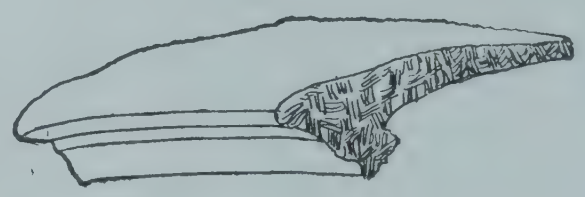


Fig 6 : 14 Rim of a *Karaie*

(Fig. 6 : 5), and *Charwari* (Fig. 6 : 6) are distinguishable. Thus, different types of rims are made for different pots (Figs. 6 : 1—6 : 14). According to the use, these pots can be classified into two broad divisions, viz., the pots which are used for storing or fetching water, and those which are used for cooking. *Madaka* and *Mathan* are used as storage jars for water. *Heltura* and *Tauli* are used for fetching water. *Barbuj, Chitaki* and *Barpiw* are used in cooking for different purposes.

Some of the potters of Madhya Bharat and Gujarat classify the finished pots also on its geometrical shape. However, the basic classification made on the size and the conventional use of the pots remain unchangeable. When the base, body and shoulder of the pot are composed in a single curve (Fig. 6 : 15),

Fig 6 : 15 A pot of a single curve

Fig 6 : 16 A pot of a double curve

Fig 6 : 17 A pot of a triple curve

it is called '*ek pati*', or the pot of a single curve. When the base and the body of the pot are composed in one, and the shoulder in a separate curve (Fig. 6 : 16), the pot is called '*do pati*', and in case the base, body and the shoulder are composed in separate curves (Fig. 6 : 17), the pot is designated as '*ti pati*', or the pot with three facets.

The most widely prevalent pots have a convex bottom, and the pots with a flat bottom are few and far between. All the vessels that are used for cooking cannot have a flat base. Only water jars may have a flat bottom or a ring base. It has been observed that among the Muslim potters and the Muslim customers the pots with ring base are quite popular. The Muslim potters of Kutch (Gujarat), Nohar (Rajasthan), and Charisharif (Kashmir) make a large number of pots with ring bases. The pots with handle, spout, lug, and beak have also more popularity among the Muslims.

SURFACE TREATMENT

According to the surface finish and decoration, the pots may be classified into three main groups : (1) plain pottery, (2) painted pottery and (3) glazed pottery. The plain pottery includes all pottery articles which are both slipped and unslipped. The pots painted before or after firing for decoration or ritual purposes come under painted pottery. When the biscuited pots are glazed and fired in the kiln, they are distinguished as glazed pottery.

The techniques required in plain pottery as well as painted pottery have already been discussed. Glazed pottery is manufactured mostly by urban potters, and the techniques applied in this pottery have so much advanced that it forms an independent work of considerable importance. In the following paragraphs, we will try to describe the techniques of glazing applied by some of the village potters engaged in this work for the last several generations. These potters have inherited the techniques of glazing from their ancestors and failed to trace its origin in the near past. They have changed little in course of time and are therefore historically important. Lately, the Khadi Gramodyog Commission and the Small-Scale Industries Department of the Government have tried to introduce the techniques of glazing to many places in rural areas. But we will not consider their techniques for this work.

Chunar (Mirzapur : Uttar Pradesh) is one of the oldest centres, where glazed pottery is manufactured. According to Shri Chedi Lal, an informant from Chunar, glazed work was introduced to this village for the first time some five hundred years ago by one Bachcha, Khatri by caste. Bachcha had been away from home for a pretty long time, and when he returned to this place, he had a woman with him. The woman knew the art of glazing and started her work in this village. After some time, Bachcha ran away with the wife of a Kayastha, and the woman was left here alone. Some people say that this woman was a Chini, and some are of opinion that she was a Bengali. However, the woman continued to live in the village even after Bachcha had left. After some time, she appointed a Kannaujiya Kumhar as her assistant. The secret of glazing was confined to this woman and her assistant. After the death of the woman, her assistant, the Kannaujiya potter, started the work on a large scale ; and since then the art of glazing is transmitted from generation to generation within his descendants.

The earliest method of preparing glaze by the Chunar potters was simple. They used to prepare glaze by glass, borax, and *senrh pathar,* which were procured from a hillock, Lohiya Sukarud, situated near by. In place of *senrh pathar,* nowadays manganese is used by them. They produce only dark brown shade and do not make any design on the pot. Glazing is done on red clay articles in a simple up-draught kiln in which only wood is used as fuel.

The potters of Chunar glaze various ornamental articles, like flower vases, pen-holders, head of an antelope, elephant, horse, birds and varieties of figures and toys. These articles are usually

moulded. Some of the families of potters have specialized in moulding and biscuiting the articles, and a few others perform the glazing. The potters of the neighbouring villages like Raipuria, etc., supply biscuited pottery articles to the potters of Chunar only for glazing.

Khurza (Bulandsahar : Uttar Pradesh) is another old centre of glazed pottery, where Muslim potters have a monopoly of this art. These potters call themselves Multani Pathan Kumhars, and, as the name suggests, they are originally from Multan. They produce highly artistic blue pottery. Unlike Chunar potters, the Khurza potters make some conventional floral designs on the pot, and they know the technique of under-glaze. Another difference between the technique of Khurza potters and Chunar potters is in the construction of the kiln. Though both these potters work in an up-draught kiln, the former glaze the pot in a circular kiln, and the latter has a rectilineal kiln.

The Khurza potters jealously guard the secret of blue pottery and do not allow others to be present at the time of preparing the blue glaze. The different shades of blue glaze are often prepared by the following methods. First of all, white glaze is prepared by mixing equal proportion of *kanch* and white oxide of lead finely ground and sifted. The mixture is cooked in a kiln especially meant for this. A little quantity of borax (approx. $\frac{1}{8}$ of the mixture) may be added while the ingredients are melting in the kiln. Sometimes, *kalami* soda is also added for whiteness. The glaze may be boiled for eight to nine hours and then allowed to cool and kept for use. The blue shade is prepared by mixing either cobalt, copper or manganese in different proportions with this white glaze. The glaze and the colouring material, after being reduced to powder, are ready for application to the vessels.

In Kashmir Valley, the pots are glazed in green colour of different shades at many places. The technique of glazing is reported to have been introduced among the Kashmiris by Englishmen about two hundred years ago. The glaze is prepared by the mixture of borax, *kalaie, nag* (lead), *sheesha* (*kanch*), and *kaien* (white quartzose rocks). They mix large quantities of lead in the glaze, and hence their glaze is heavy. Different shades in green colour like *zamrudi* (deep green), *sabz* (light green), *pistaki* (bright green or the colour of pistachio) and *dhani* (green like paddy shoots) are produced by mixing colour and the glaze in different proportions. Kashmiri potters glaze their pots in the same kiln that is used for biscuiting.

In Jammu, a large number of utilitarian pots are glazed. We have not met with any other example in the country where pots for the daily use of villagers are glazed on such a large scale. The pots are prepared out of ordinary red clay, and transparent glaze is applied on them. One master potter, Sri Des Raj Kapoor of Jammu, gives the following formulae for the glazes to be applied on red clay :

Transparent glaze

Kanch	.. ..	70 parts (by weight)
Borax	.. ..	10 „
Red lead	.. ..	15 „
Quartz	.. ..	2 „
Zinc	.. ..	2 „
Marble	.. ..	1 part

Following are the coloured glazes which may be used on red clay.

Brown glaze

Kanch	.. ..	65 parts (by weight)
Red lead	.. ..	20 „
Borax	.. ..	9 „
Quartz	.. ..	1 part
Iron oxide	.. ..	1 „
Manganese	.. ..	4 parts

Leaf green

Kanch	.. ..	62 parts (by weight)
Red lead	.. ..	22 „
Borax	.. ..	12 „
Quartz	.. ...	2 „
Copper oxide	.. ..	2 „

Dark green

Kanch	.. ..	72 parts (by weight)
Borax	.. ..	12 „
Red lead	.. ..	13 „
Quartz	.. ..	1·5 „
Copper oxide	.. ..	0·5 part
Chrome oxide	.. ..	1 „

Yellow

Kanch	.. ..	70 parts (by weight)
Borax	.. ..	15 „
Red lead	.. ..	10 „
Red oxide	.. ..	1 part
Antimony oxide	..	8 parts
Quartz	.. ..	2 „

Light Yellow

Kanch	.. ..	60 parts (by weight)
Litharge	.. ..	30 „
White lead	.. ..	15 „
Quartz	.. ..	5 „
Iron oxide	.. ..	1 part
Zinc oxide	.. ..	1 „

Red

Kanch	.. ..	70 parts (by weight)
Borax	.. ..	12 „
Red lead	.. ..	13 „
Quartz	.. ..	2 „
Red oxide	.. ..	5 „

Blue

Kanch	.. ..	80 parts (by weight)
Red lead	.. ..	20 „
Borax	.. ..	10 „
Cobalt oxide	.. ..	1 part
Quartz	.. ..	2 parts

White

Kanch	.. ..	60 parts (by weight)
Red lead	.. ..	20 „
Borax	.. ..	9 „
Quartz	.. ..	4 „
Zinc oxide	.. ..	2 „
Tin oxide	.. ..	7 „

The above materials are made into frit in the oven and then grounded for use. The suitable range of firing temperature of the above is 800° to 850°c.

However, excepting Jammu and Kashmir, the glazed pottery has not gained a wide popularity among the Indian peasants, mainly on account of ritual prejudices and technical difficulties. Clay pots are defiled easily, and food cannot be served twice in an earthen vessel. This restricts the use of glazed pottery. There are many technical difficulties, too, in procuring suitable clay and chemicals and also in constructing a kiln for glazing. Glazing on red clay has not been successful in industry, and china-clay is not easily available. All these factors draw the glazed pottery off the villages.

USE

The forms as well as the surface treatment of the pot are determined not only by technical consideration but also on the use, tradition, and aesthetic considerations. The form is directly dependent upon the manner in which the vessel is used. For instance, to have a long upright neck in a vessel depends much upon the use than for any other consideration. The potters of Kutch, Rajasthan, Mithila and of eastern India make a long necked jar because their customers carry the water jars in the arms supported on the waist. In Saurashtra, the women while fetching water from the well carry three pots, one upon another, over their head, and to maintain a balance in this sort of arrangement the potter is required to give a wide shape to the mouth of the pots. The long necked jar in this case will be highly inconvenient. In places where the women carry three or four water jars at a time on the head and also on the waist, both the above types are required. The form is so much related to the use that the classification of pottery is actually based on it.

Difference in the surface treatment of water jars and cooking pots has already been discussed in earlier pages. Painting on pots is not always done for merely aesthetic purposes. Here tradition plays an important role. Painting has also a ritual value. As discussed in the chapter on painted pottery, in the regions where painting is not a common feature, ritual pots are necessarily painted.

Considering the above two propositions, we also reach to the conclusion that making of varieties of pots by a potter depends, to a large extent, upon the varieties of use his customer is making. In a village in Rajasthan, the potters complained that their market of *belauna* (a vessel used for churning milk) had been greatly affected by the encampment of a military cantonment nearby. The milkmen found it more profitable to sell their milk to the canteen contractors, and when the milk is sold unskimmed, there hardly remains any necessity of *belauna* for churning. It has been observed that among the pastoral people, the clay vessels are in greater demand, both in number and varieties. Therefore, usually, the potters living amidst them have been found manufacturing large varieties of pots.

The earthen pots used by the Hindus for cooking purposes are discarded on the occasion of death, birth, marriage, initiation and *sraddha* (annual offering to the manes) ceremonies as they are considered to be defiled. Hindus cannot take food twice in an earthen pot. Some of the orthodox Brahmans will break the pot after it is once used for cooking. This has restricted the use of pottery, to a very large extent, for cooking as well as for drinking

and eating purposes. It is for this reason that the use of pottery in domestic use has been found more among the Muslims than the Hindus.

As one travels from north to south India, one finds that there the *kulhar* (an earthen cup for drinking milk or tea) is conspicuous by its absence. In a South Indian temple, the devotees will get the consecreted food '*prasadam*' in a leaf cup, whereas in North India an earthen cup is always used for this purpose. In South India, pottery is less used for cooking purposes by high caste Hindus for its susceptibility to defilement. Our observation shows that the South Indian potters produce fewer varieties of pots in comparison to North Indian potters.

Besides utility in the kitchen, pottery has a great ritual value. There are innumerable instances to show that right from prehistoric times, pottery has maintained its ritual importance down to the present day. It is true that metal wares have become quite popular nowadays among the rich and poor alike, but for ceremonial use earthen pots are still used when silver or gold vessels are not available.

Worship of the *kalas* (a pitcher which is filled with water and contains a mango twig and a green coconut on its brim) is widely prevalent over the country. It represents Ganesh or Bighnesh (Clearer of Obstacles) and is worshipped in the beginning in any ritual performance. The *kalas* should always be a new pot. Whenever red pot is not available, the black pitcher may be smeared with vermilion to do away with the ritual impurities of the colour.

In Orissa, seven unfired tiny pots are required on marriage occasions. These pots are called *mangal handi* and represent seven *Rishis* on the marriage altar. Another large fired pot is required on this occasion in which sun-dried rice and water are poured by seven married women (women having children and not widows) as a symbol of fortune and fertility to the bride.

On the occasion of Grahapuja or worship of the nine celestial bodies also nine unfired pots are required. These pots represent the nine *grahas* or planets. The pot representing Sani (Saturn) is smeared with lamp soot, and the one representing Ravi (Sun) is painted with vermilion.

In West Bengal, too, unburnt earthen pots called *ritu-ghat* are used on the occasion of Harisasthi, celebrated on the last day of

Agrahayan. Besides *ritu-ghat,* there are many other pottery articles like *dhupochi, malsara, choto-kalshi, ghat-vand, sara* or *thaila* and *kopta* used on various ceremonial and ritual occasions.

On the mortuary cleansing day, two ritual pots are required—one is called *dashaha handi,* and the other is *dagdha handi. Dashaha handi* is used for cooking sacred food for the deceased at the venue of the cleansing ceremony by his kinsman who performs ritual acts for the salvation of the deceased's soul. The *dagdha handi* is required to serve the deceased with food.

Akhanda handi (a perforated pot) is used in many parts of eastern India to burn the sacred lamp inside it, and where the flame is to be endured for several days and nights. The sacred lamp is lighted on the occasion of the recitation of the *Bhagawat,* the *Ramayan* or *the Haribansha* and is kept alight for seven days till the function is over.

A pot with a tiny hole at the bottom is used for the worship of basil plant in the month of Vaisakha. The pot filled with water is suspended over the plant, and the water trickles drop by drop upon it.

In the month of Bhadra-Aswina, a pot filled with water is worshipped where a wood-carved figure of goddess Durga is installed therein.

In South India, large number of coloured pots are required at the time of marriage to represent thirty-three crores of gods in whose presence *tali* is to be tied on the bride's neck.

Among the Patnulkarn, pots are worshipped daily throughout the marriage ceremonies. Four pots are placed on the floor at equal distance, and they are connected with a sacred thread. The bridegroom and bride are seated within this enclosure and are given a ceremonial treatment by their kinsmen so as to symbolically perpetuate their conjugal relationship. These pots are worshipped for seven days.

In Gujarat, a perforated pot called *garba* is used during *garba* dance by unmarried girls. An earthen lamp is lighted and kept in the *garba.* A girl carries the pot over her head, and the dance begins. The *garba* is celebrated in Navratra and Diwali.

The women of Rajasthan need a perforated pot called *gudala* during the Gangor festival. Lamps are put inside the pots, and

the women perform the ceremonial dance by keeping them over their head.

In Rajasthan, a special type of pot called *bijora* which resembles the shape of a hamlet is used for warding off the influence of witches over new-born babies. The pot is heated and kept in water which is subsequently given to the baby to drink.

A ritual pot with four mouths, called *chaumukhi kalash,* is used for the worship of the Mother Ganga. Jawari (millet) is sown in the pot. When the plant grows out, a coconut is placed on the mouth, and a red cloth is tied round its neck. The *kalash* represents the Mother Ganga and is worshipped widely over Rajasthan.

In Uttar Pradesh, a spouted pot, called *karba,* is used in marriage ceremony among the Hindus.

In Mithila and Madhya Pradesh, a pot with twenty-seven spouts, called *sataisha,* is used to avert the danger on the life of the new-born baby by the inauspicious assembly of the planets. The ceremony, called *mool garh,* is performed by pouring water on the head of the child from all the twenty-seven spouts of the *sataisha.*

A spouted pot, called *baura,* is used by the Hindus of Madhya Bharat at the time of marriage.

In Himachal Pradesh, an earthen pot, called *proto,* is worshipped by the husband and wife during the time of *yajna* or fire sacrifice. *Proto* is a small pot covered by a red cloth, and red and yellow threads are tied round its neck. Betel-nut and rice are kept inside the pot. *Proto* is also used for carrying water in a funeral. Another pot used for carrying fire on this occasion is called *arula.*

Besides these ritual pots, there are many other pottery articles like clay figures of deities, horses, elephants, earthen lamps, etc., which are needed for worship or sacrificial purposes. An Indian peasant requires pottery articles throughout his life, for all festive and ritual purposes, and, at least, on all the four important occasions of his life crises, namely, birth, initiation, marriage and death.

THE POTTERS

In many parts of the world, the craft of pottery is an individual profession and, more often, restricted to a particular sex. But in India, as it is the case with other crafts, the work of pottery is monopolized by a particular caste in which both the sexes are engaged. Excepting a few cases in Kerala, Assam, and Jaunsarbawar, which have been referred to earlier, we do not find many instances in which the art of pottery is limited to a particular sex, namely, women, or to individuals. Usually, the work of clay is an occupation traditionally followed by a particular caste known by different names in different regions of India, which are etymologically derived from the terms for 'pottery manufacturer'.

NOMENCLATURE

Excepting in Kashmir Valley, where they are called *karal,* in the whole of western, central, northern and eastern India the potters are known as *kumhār* or *kumbhār*. In West Bengal, the potters are also referred to as *kumor*. In southern India, they are called *kusavan* in Tamil ; *kusavan* or *kuyarvan* in Malayalam ; *kuvara* or *kumbara* in Kanarese, *kusave* in Tulu ; and *kummara* or *kumrulu* in Telugu. Etymologically, all these names have been derived from the original Sanskrit word *kumbhakara,* 'pot-maker'. In parts of western Orissa, potters are also known as *Bhande* which is the derivation of the Sanskrit word *bhānda,* a pot.

THE RANK OF POTTERS IN THE CASTE SYSTEM

The social status of the potters is not uniform all over India ; diversity in the ranking order occurs not only in different linguistic areas but in different localities also. But, in general, as an artisan-caste the potters belong to the *Sudra* group and are treated as a clean or Right-hand caste.

Potters, like other castemen, are segmented into various discrete endogamous units, either on the basis of territorial affiliation or on the basis of occupational peculiarities. Each endogamous unit has its own appellation and can be termed as a sub-caste. Ordinarily, when two or more sub-castes live side by side in a particular locality, they are ascribed a corporate rank in the regional caste hierarchy. Thus, different sub-castes of the potters are juxtaposed in the heirarchical order when treated by other castes. But there may not be any commensal or connubial relationship among these sub-castes, and each may claim to be superior to the other in ranking. Under certain circumstances, the sub-castes among potters may be discriminated by other castes. This happens,

usually, when a particular sub-caste observes customs which are ritually impure. In Bihar, the Turkaha potters rank very low, because they eat eggs and fowl. The Kanaujiya potters living in the same area are considered not only superior to the Turkaha, but have a position equal to that of Gowalas (milkmen) and Hajam (barbers). Similarly, the Sungariya potters of Madhya Pradesh are considered low as they rear pig, and the Bardiya potters of the same region rank with the clean castes. The latter carry burdens by means of pack-bullocks. The Vehlar Tamil potters also practice pig-husbandry and are, therefore, considered low. In Orissa, the Telugu immigrant potters are considered very low in social scale, because they practise uncle-niece (elder sister's daughter) marriage, which the Oriya potters regard as incestuous.

During our investigation we found that the ranking system is clear-cut and elaborate in southern Madras and Kerala. The potter as well as all other castes in these areas are placed each in a unique or discrete rank of the caste-groups. For instance, the ranking order in southern Madras is as the following: Only Sudra group: Reddiar, Vellar, Kallan (all agricultural castes), Chettiar (oilman), Idaiyan (shepherd), Seniya (weaver), Gashu (cattle-rearer), Pannakkan (carpenter), Tattan (goldsmith), Kolar (blacksmith), Kusavan (potter), Vannan (washerman) and Ambattan (barber).

But in other parts of India, the ranking system is not elaborate. Because within the Sudra group, we have found that groups of certain castes are ranked together. And all the castes within each category are ascribed a discrete rank in the vertical caste ranking order as allied castes. These juxtaposed castes may be called as 'ranking equals'. The position of the potter's caste can be visualized in the larger context of the local community constituted by various caste groups. In Kerala and southern Madras, the correlative interaction of the potter caste with other caste groups is stratified in vertical dimension only—spread out above as well as below ; but in other places this interaction with other caste-groups is in vertical as well as in horizontal dimensions. This will be clear from the following ranking order of the Sudra group of castes in southern Mysore.

1. Kunchatiga, Ganda, Vokaliga (all agricultural castes),
2. Golla (cattle-rearer), Kurubha (shepherd),
3. Devanga (weaver),
4. Badgi (carpenter), Kumbara (potter), Kammaru (blacksmith), Akkasaliga (goldsmith),

5. Agasa (washerman),
6. Ambata (barber).

In Bihar and West Bengal, Brahmans will take water from the hands of potters. In northern Bihar, the potters rank equal to the Gowalas (milkmen) and Hajams (barbers). In Uttar Pradesh, the potters rank equal to Kachhi, Kisan and Koiri, and the Brahmans accept water from their hands. In the Punjab, the potters are considered lower than blacksmiths but equal to barbers. But in Rajasthan and Gujarat, the potters are considered superior to barbers and washermen. In central India, the potters do not rank below the smiths. In Maharashtra, the potters rank with the Dheemars and the Brahmans will take water from their hands.

As marriage is strictly confined to the endogamous group so also is commensalism. Maximum commensalism prevails within the group. Like other castes, the potters all over India equally make a distinction between *kachcha* and *pakka* food: the former type is cooked with water and the latter with *ghee*. They eat *kachcha* food cooked by the members of their own endogamous group or a Brahman, and *pakka* food cooked by the same or by a confectioner.

Usually, potters are served by the Brahman priests, who officiate in their marriage and similar ceremonies. But wherever the potters are associated with impure animals, whether they rear pigs or eat their flesh, they are given a comparatively low position in the hierarchy than the usual, and Brahman priests do not serve them. For instance, the Vehlar potters of Madras and the immigrant Telugu potters of Kerala, who rear pigs, are served by their own caste priests called Wadiyar and Patakaran respectively. Lingayat potters are served by their own caste priest called Jangam, who is also a Lingayat.

CASTE STRUCTURE

As the institution of the caste is highly complex, the Kumbhar *jāti* or potter caste cannot be viewed on an all-India scale. The functioning of the potter caste can only be understood in the context of a local or regional social system, which is formed by various caste groups which act together to perform a function. The various caste groups are interdependent for the purposes of their mutual function, and the interdependence is guided by a specific traditional behaviour towards one another. We shall discuss this in relation to potter caste later on.

The potter caste is segmented into numerous endogamous units on the basis of territorial or sectarian affiliation, or on the basis of occupational peculiarities; and each such unit has a distinct appellation. Each unit can be regarded as a sub-caste, as it is endogamous; geographically limited to an area; has a traditional behaviour pattern and adhere to a peculiar technique in the pursuance of their hereditary occupation. A sub-caste presents a unified and compact cultural pattern, but in reality, it does not carry on a life of secularly unified regulation, and the restrictive martial lines are far narrower. As the members of a sub-caste are numerous and spread over a large tract, they are divided into a number of units for the purpose of regulating the caste norms. Each unit is formed by several villages and has a caste council. Usually, marriages are performed within the unit. This may be called the *de facto* endogamous unit. Each such mating group contains within its fold several exogamous *gotras* and thus the marriage mates are easily available within it. Maximum commensalism and connubiality is found within the mating group. Nonetheless, under special circumstances, with the approval of the caste council, marital relations can be extended beyond the geographical unit, within the sub-caste, but never beyond it. There are sanctions against marriage and commensalism outside the sub-caste which are stronger than those imposed upon members of different mating groups within the same sub-caste.

The sub-caste formation as well as the formation of mating groups within it are more conspicuous within a linguistic area than outside it. For instance, a Tamil potter is known as a Tamil potter to outsiders, but to a Tamil potter he is known by the name of the sub-caste, viz., Vehlar or Chettiarkusavan or Mannwadeyar.

The real endogamous unit of the potter caste, as among other castes, is compact and small in southern India and comparatively large in northern India. In southern India, a man marries his cross-cousin or cross-niece (elder sister's daughter), while in northern India, there are no such preferential marriage mates, and usually in marriage negotiation village exogamy is observed.

The Tamil potters of Madras are divided into three sub-castes on a territorial basis: the Vehlar or southern Tamil potters, the Chettiarkusavans or northern Tamil potters and the Mannwadeyars or north-western Tamil potters. Besides, there are Kwevars or Kavras, the Telugu potters who have migrated into Tamilnad. Within the Vehlar sub-caste there are five mating groups, namely, Chera, Chola, Pandya, Choliar and Koshar. These groupings have

emerged out of the affiliation of the potters to different ancient kingdoms. The Chettiarkusavans and Mannwadeyars are equally sub-divided into a number of mating groups within their respective social spheres on the basis of localities.

In Kerala, the formation of sub-castes among the Malayalam potters is based on territorial affiliations. The potters living in the erstwhile Travancore State are known as Kulalanairs, and those who inhabit Malabar are known as Anduri Nairs. And there is a third section of potters called as Kumbaran, found in the erstwhile Cochin State as well as in Malabar coast. But the Anduri Nairs and Kumbarans are Telugu migrant potters from Telangana and Rayalaseema areas of Andhra Pradesh.

Among the Kanarese potters of Mysore, there are two sub-castes, namely, Kanada and Lingayat. Odari is another caste group of potters who speak Tulu and are confined to the northern part of South Kanara district in Mysore. The Kanada sub-caste of the Kanarese potters are split up into two divisions, namely, the Kulalgudu and the Bandi. These sub-divisions are treated as independent sub-castes. And the constitution of all these sub-castes is primarily on a territorial basis. The Lingayat potters belong to Shaivitee sect and are found in northern Mysore, whereas the Kanada potters, who are Vaishnavitees are confined to southern Mysore. The sub-castes are divided into smaller endogamous units. Telugu potters are also found in the border districts of Mysore and Maharashtra.

In Andhra Pradesh, Telugu potters are divided into four sub-castes on the basis of territorial affiliation. The Telugu potters on the north of the Godavari River are called as Rajahmundry-Kumbara, and those on the southern side of the Godavari are known as Krishna-Kumbara. The potters of Rayalseema call themselves as Rayalseema-Kumbara. And the fourth sub-caste of Telugu potters are found in Telangana and are called as Telangana-Kumbara. The Telugu potters are the most mobile of all the southern potters, because they are found in all the neighbouring states of Andhra Pradesh and Kerala as well.

The potters of Orissa form four sub-castes and speak the common language, Oriya. The potters living in northern Orissa are called Magadha and form a sub-caste. From the name it transpires that these potters must have migrated from Magadha, in Bihar. The potters in the coastal districts are known as Odiya Kumbhars, and it signifies that they must have been the original potters of Orissa. The third group of potters found in north-

western Orissa are termed as Jhadua, the literal meaning of which is 'jungle-dweller'. The fourth group of potters, called Koltha, are found in western Orissa. And all these potter sub-castes contain within their respective social spheres a number of small mating groups confined to different localities.

The potters all over south India practise child marriage, but in Orissa, they marry at adult age. The form of marriage among all of them is monogamous, but plural marriage is resorted to under special circumstances. A second wife is taken if the first one fails to bear any child. For such marriages preference is first extended to the younger sister of the wife, if available. Widows are not re-married but are maintained as concubines in the event of wife's death and are accorded an inferior status ; so also are children born out of such conjugation. In Orissa, an elder brother's widow is accepted as a concubine by the younger brother, whereas this is abhorred in South India.

In West Bengal and Assam, potters who have migrated from Bihar and U.P. are called Paschima Kumbars, western potters. The native potters of West Bengal are called Bengali Kumhar. In parts of North Bengal, some potters call themselves *khotta* Kumbar and some *paliya* or Burman Kumbars.

In central India, the potters have a number of sub-castes, many of which are formed on territorial basis. The Malwis are from Malwa, Telugu from Telangana, and the Maratha from Marathawada. Other divisions are based on the consideration of their occupation and their association with certain animals. The Gadhewals employ donkeys in their work, the Baradia use bullocks as pack animals, and the Sungarias rear pigs (*suar*). The Hathgarhia make vessels with hands only without using the wheel ; the Goria prepare grey or red pots only and refrain from making black ones ; the Kurere make their vessels on a stone *kuro* (a revolving base), and not on the wheel ; while Chakere are the Kumhars who use the wheel (*chak*).

In Vidarbha, a section of potters, concentrated around Chanda, call themselves Rana Kumbhars. They eat fish and meat but not eggs or fowl. They are sub-divided into Kapat, Borsara, Khandara, Khobara, Bani, Phaphanbara, Girole, Patar, Thakur and Gate. While intermarriage between Kapat and Thakur, Bani and Khopara, and Bani and Borsara is not permissible, all other groups function as exogamous units. In western Maharashtra, there are various sub-castes of the potters of which some are territorial and some occupational. Lad Kumbhars trace their origin from

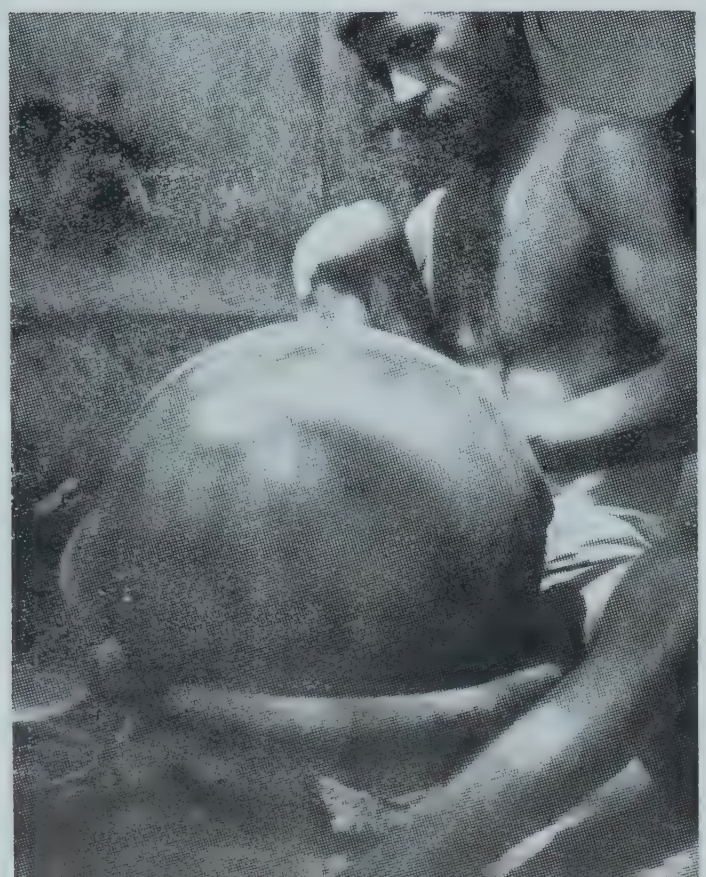
'air potter from Kerala shaping vessel on a pivoted block-wheel turned by his wife

voman from Kerala slipping the pots

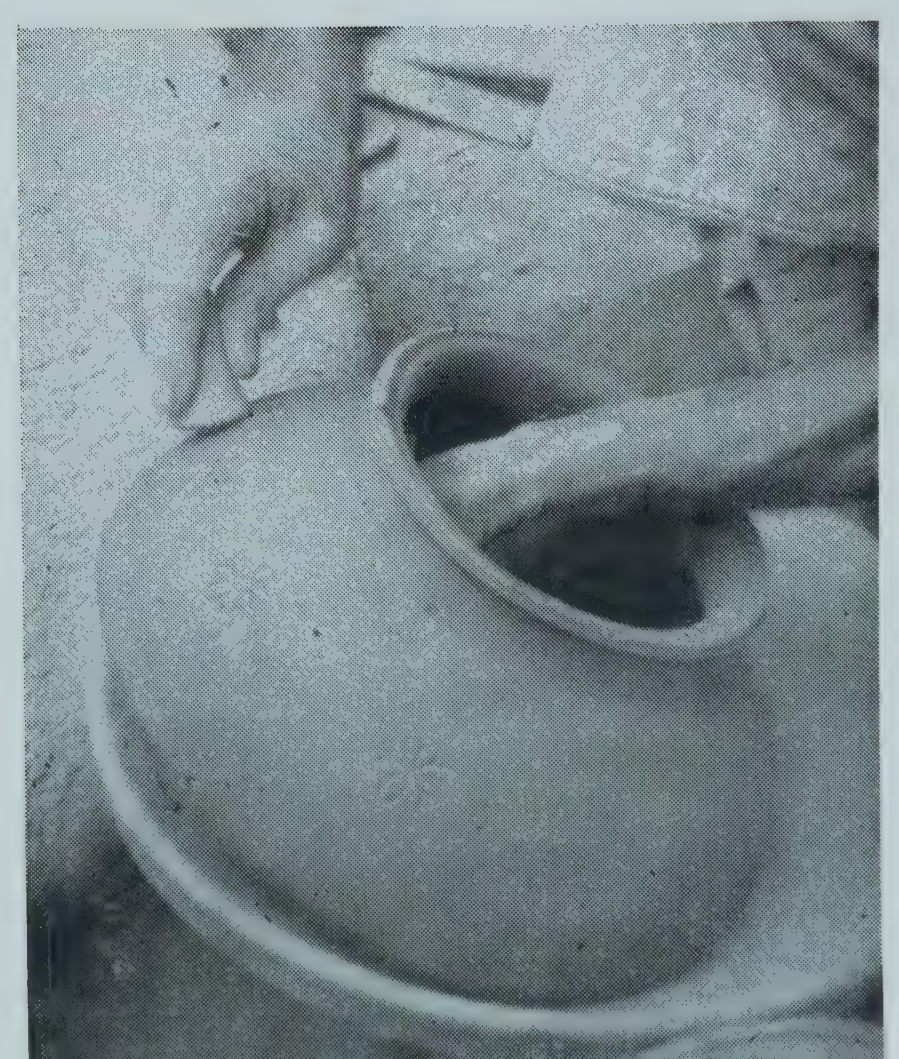
oung potters from Andhra Pradesh burnishing the pots

A Kerala woman modelling a pot by beater and anvil

A Vehlar woman beating the pot on her stretched out legs



A man from Rajasthan enlarging a wheel-thrown pot by beating on a solid base



Stamping the pot with ornamental seal

Lad (a place in Gujarat), Telangi from Telangana (Andhra Pradesh), and Konkani from Konkan region in western Maharashtra. The Hat-Ghade potters make pottery articles only by hand. Sometimes they are known as Bhonkar or Bhondi Kumbhars. There are Lingayat Kumbhars also in various parts of Maharashtra.

In Gujarat, the Hindu potters are divided into various endogamous groups, *viz.,* Ajmeri, Bariya, Gujar or Gujariya, Khambhata, Maroo, Bataliya, Lad, Sorathia, Dhabariya, Mawadiya, Dhokhiya, Jagatia, Kariya and Pattani. According to religious affiliation, the Bariya potters are further sub-divided into Lal-Bariya, Jai Gopaliya and Bariya Vaishnao. The Pattani potters who belong to Patan in Mehsana district classify themselves by the nature of pottery work they do and the religious sect they follow. Intwalas prepare bricks, Khatgaras make tiles, Kulhariwala make *kulhar,* Wariowala make special pots for *ghee,* Otiyas are toy-makers, Mantiwala work on *mants,* and Swamis, who are the devotees of Padmanath Swami, prepare various designs of pottery articles. Sorathia and Bariya Kumhars distinguish themselves from each other by certain social customs. Sorathia women wear *sari* in their own style called *teparia* and wear a big nose-ring like Marwaris, whereas the Bariya women wear *ghagara* and a nose-pin for the nose. Sorathia send death-messages to their relatives through a Dhedh (Harijan) who carries a chit called *maila,* and the Bariya first convey such messages to their relatives in the neighbouring village orally with the request to pass it on to other villages in the same manner. Bariyas believe in Srinathjee and wear *kanthi* (sacred bead-necklaces). Sorathias are non-vegetarians and do not worship Srinathjee. In Madhya Gujarat, Bariya, Gujar and Bataliya can interdine but cannot intermarry. The potters of Gujarat are organized into several exogamous clans, *viz.,* Gol, Chauhan, Rathor, Singariya, Chanpan, Ladwa, Bardwa, Rawat, Mandora, Jagatia, Jadar, etc. The Muslim potters of this area are divided into three endogamous units, which are of territorial type, viz., Gadhwi, Sindhi and Kutchi. Such of the potters who work on stones are called Majothi and are treated low.

The potters of Rajasthan are divided into two broad occupational groups, namely, Khetare or Kumawato, who are agriculturists, and Mathere, the pot-makers. These potters have several endogamous units, *viz.,* Jodhpuri, Mewara, Mewaliya, Banda, Gujarati, Laderiya, Maroo, Ladwan, Surya and Raj. Mewara and Mewaliya distinguish themselves by he speciality of their work, for instance, Mewara potters make red pots while Mewaliya make black pitchers. Mewaliya women wear

nose-ring (*nath*), Mewara women never wenr such nose-ring. Mewara potters are further sub-divided into 84 exogamous clans, some of them are Dabariya, Jalmandariya, Luniyan, Khati, Khatipura, Khatibepara, Habaliya, Bhana, Bhiza, Charondva, Kachuriya, Barodya, Dhamanyan, Aheri, Pariyar, Pandarya, Manchibar, Manudaniyan, Sabare, Musalare and Baroonjana. Some of these clans refer to their mythological origin, for instance, Dabariya and Jalmandariya. Once the goddess Earth expressed her amorous intention to Vishnu. Vishnu made a complete circumambulation of the Earth, and thereupon two sons were born to her. Dabariya was born from *durba* (grass), and Jalmandariya sprang from *jal* (water). The Luniyan potters of Ajmer make black pots and not red ones, but the Khati prepare only red and not black. The Luniyan women do ornamental lac-painting on the pots which the Khati women do not know. The Muslim potters of Nohar (Sri Gananagar District), who claim to be of Rajput origin are divided into seven exogamous *nakh* (*clan*) : Ahitan, Rawan, Chawari, Dhundi, Dar, Berum and Gua.

In northern India, the Kumhar sub-castes are largely occupational : the Baldhiya use oxen in their work, the Gadhere donkeys ; Hateriya makes pots by hand instead of with a wheel ; the Kasagar make cups, and Intpaz bricks.

The Hindu potters of the Punjab are divided into three *khaps* (sub-castes) : Mahar, Gole and Thare. After the partition of India, several groups have been further added in the regional caste structure of the potters. Salotra, Jamba, Bandiyan, Beer Rajput, Bagadi, Jamuar and Kujagar are some of the groups of the present potters of the Punjab. The potters of Kangra Valley who call themselves Jamuar say that they came from Jammu. Bagadis are Rajasthani potters, famous for painting. Kujagars are toy-makers. They treat themselves superior to those potters who keep donkeys and beat the pots. Mahar and Gole separate themselves on the basis of a legend in which the Goles are said to have been the descendants of one of the two brothers who married his own widowed mother by an oversight and had a son from her. The Mahars are said to be the offspring of the second brother who had a regular marriage. It is curious to note that whenever the word Gole is implied to other castes, it carries a meaning almost similar kind of irregular union ; for instance, Gole Agariya or Gole Thakur (i.e., bastard Rajput). Mahar and Gole potters distinguish themselves also on the basis of certain customs and the method of working. The Gole potters keep donkeys, their women wear *ghagara* and *odhani* and eat eggs and fowl and, therefore, looked down upon by the Mahars. Gole women do excellent painting on

the pitchers, while the Mahars prepare simple pitchers. The Mahars are further sub-divided into several exogamous clans, namely, Taggar, Tel, Dab, Khambha, etc. The Gole potters are said to have 360 exogamous clans, namely, Kalsariya, Demiwal Kantiwal, Kharauliya, etc. This at least shows the numerical strength of the Gole Kumbars. The potters who have migrated from West Pakistan, particularly from Lyallpur and Lahore, belong to Gole sub-caste.

The local potters of Himachal Pradesh claim descent from Rishi Kaundilya, and, therefore, superior to the Mahar, Gole and Thare who have migrated from the Punjab and settled in the eastern side of Himachal Pradesh.

The Dogra potters of Jammu are divided into three groups, namely, Badayal, Rihan and Gorayu.

In Uttar Pradesh and Bihar, the Kumhars are divided into several endogamous groups like Kannaujiya, Magahiya, Turkaha and Gadahiya. The first two divisions are apparently territorial; and besides this, the Kannaujiya potters beat the pots by the *Tokana* method, (Chapter on whee-thrown pottery) the Magahiya do not practise it. The Magahiya and Kanaujiya can interdine but cannot intermarry. Turkaha and Gadahiya are treated to be very low because of their association with despised donkeys, eating eggs and fowl, manufacture of bricks and tiles, and nomadic habits. A section of the Kumhar, named Sonkar Hareri, is found in Bundelkhand. Chauhaniya Misir and Murkatta-Murjora Rajput are the other two sections of the Kumhars of Uttar Pradesh. The term 'Murkatta-Murjora' refers to the method they make the pots. Some high caste Hindus hold a low opinion regarding Murkatta-Murjora potter, because he 'cuts' the throats of his pots as he takes them from the wheel. In West Bengal, a similar prejudice is attached to this method; and such potters are often compared with a midwife who cuts the navel cord of a child immediately after birth. Some Muslim potters, called Kujagar, are found in Sultanpur District. Muslim potters of Khurja (Bulandsahar) who call themselves Multani Pathan are famous for their blue glazed pottery.

THE RITUAL IDIOM AND FETISHISM

The potter caste, like other artisan castes of India, has a departmental deity. The deity is not identical all over India; it varies from one region to the other and often within a region.

The wheel and other tools, as fetishes, are worshipped along with the departmental deity as well as on other ceremonial occasions. Among all the tools employed in pot-making the wheel is considered most sacred and significant. The kiln, wherever it exists, is offered *puja* along with the wheel and other tools, and where open-firing is practised, *puja* is offered to the pile of pots while kindling it. Besides, as Hindus the potters observe several Brahmanical rituals and invoke different Brahmanical gods in conformity with the local or regional customs. The oblation to the departmental deity and to the fetishes includes vegetarian food, fruits, flowers. sacred lamp, vermilion, sandal-paste and leaves of sacred *bel* tree (Aegle-maralos). Some potters in South India offer animal sacrifices to the Female Energy or Sakti which we shall discuss later. The sacerdotal acts, while worshipping the departmental deity and fetishes are usually performed by the senior male member of the family, because adoration is done at the family level.

The Vehlar potters of Madras revere Aiyannar (Shiva) as their departmental deity and visit Aiyannar temples on every Tuesday and Friday in order to offer oblations themselves. Ritually defiled women refrain from visiting the premises of the temple until they are purified. They worship the wheel, kiln and other tools on *Ayudhapuja* occasion which is otherwise known as *Saraswatipuja* in Madras and in some parts of central India. This festival corresponds to *Dussera* in northern and eastern India ; *Navratri* in Kerala, Mysore and western India. They offer, communally, black or red fowl or goat sacrifices to Bhadrakali on *Asharha purnima* (June-July, full moon day) and on *Agrahayan purnima* (November-December, full moon day). The Wadiyar, their caste priest, performs the sacrificial rite and slaughters the animal. On this day, many potters individually present the goddess with various votive offerings, which include terra-cotta horses also.

The Chettiar, Mannwadeyar and Kavra potters of Madras regard Ganesh or Vinayak as their departmental deity and specially invoke him on the occasion of *Vinayakchaturthi* commencing in the month of *Bhadra* (August-September). On this occasion as well as on *Ayudhapuja,* they worship their tools but never perform animal sacrifices.

The Kulalanairs of southern Kerala regard Shiva as their departmental deity and ceremonially invoke Him on *Shivachaturdasi,* which commences during *Phalgun* (February-March), and worship their tools on this occasion as well as on *Ayudhapuja.* On *Onam,* the Malayalam harvest festival, they worship their tools also.

They offer animal sacrifices to Bhadrakali like Vehlar potters of Madras on similar occasions. The sacerdotal acts of the sacrificial rite is performed by the *poeti* (a Namboodri Brahman), whereas the execution of the animal is done by a man drawn from the Panam or Tondayan caste (formerly untouchables). In northern Kerala, all the potters honour Vinayak as their departmental deity and ceremonially invoke him on *Vinayakchaturthi.* Nevertheless, they worship Shiva on every Monday before working on the wheel. They adore their tools on *Vinayakchaturthi, Navratri* and *Onam* too.

Vinayak is also honoured as the departmental deity by the Kannada and Lingayat potters of Mysore and is worshipped with elaborate rituals on the occasion of *Vinayakchaturthi.* The Lingayats who belong to the Shaiva sect invoke Shiva on every Monday as well as on every new moon day of the lunar month. They also wear the *Linga* (phallus), the sacred emblem of their sect.

The Telugu potters all over Andhra Pradesh adore Ganesh as their departmental deity and specially invoke him on the day of *Ganeshchaturthi.* On this occasion as well as on *Makarparba* and *Ugadi,* the Telugu New Year's day, they worship their tools. The Telugu potters do not offer animal sacrifice to any deity.

In Orissa, all potters regard Visvakarman, 'All-Creator'—the architect of gods, as well as Shiva as their departmental deities but in actuality never invoke them with elaborate ceremonies. On *Kulalpanchami* and *Odhanasasthi,* the occasions which commence consecutively during the month of *Agrahayan* (November-December), they worship their wheel and other tools. And, in addition, on the *ashtami* day of the *Dussera* festival they lay down their tools for three days and offer *puja.* Oriya potters do not offer any animal sacrifice to any deity whatsoever.

Most of the potters of West Bengal regard Mahadev as their principal deity, as they believe in the creation of the potter caste by Mahadev. Potters worship their wheel in the month of *Jaistha* (May-June). In the month of *Vaisakh* (April-May), the wheel is allowed to take complete rest. On the day of *Chakrapuja* (wheel-worship) an image of Shiva made of clay is placed near the potter's wheel where other implements are also collected. A priest from the Navasak community performs the *puja.* The sun, cloud-god (Indra), Agni and Brahma are also worshipped along with the tools and village deities.

The Bariya Vaishnao and Swami potters of Gujarat wear *kanthi*

and also the sacred mark of their sect on their forehead. Some potters of Gujarat are the devotees of Ramdeo peer, a sect widely spread over in parts of Rajasthan and Gujarat.

Ashapura, 'Hope-fulfiller', a female deity, is worshipped by many of the potters of Rajasthan on ritual and marriage occasions. She is the departmental deity of the potters. Some potters of Rajasthan hold Ganesh too as their departmental deity.

The potters of Madhya Gujarat worship Khoriya Debi, a malevolent female spirit, and other male deities like Jhanpara Maharaj and Hanuman. Coconut is the symbol of Jhanpara Maharaj and is found in every potter's house on a rack or in a cupboard in the wall. These deities are worshipped on *Navratri* and on other ceremonial occasions.

In Kangra valley and Jammu, the potters regard Visvakarman as their departmental deity and invoke him on the occasions of *Diwali* and *Holi.*

In Himachal Pradesh, the caste deity of the potters is Guru Gorakhnath, the traditional founder of the sect of *Kanphata,* or split-eared yogis. He is ubiquitous and all-powerful. He is deified, and legend gives him omnipotence. He can coerce Brahma, the 'God of Fate' and command him to alter a person's destiny.

In Mithila and other parts of Bihar, Visvakarma and Siri are regarded as the departmental deities. Siri is worshipped for the general well-being and Visvakarma for prosperity in trade.

Potters all over India observe certain days during which they completely refrain from pottery-activities. The observance of these taboos, of course, varies from one region to another, and often from one section of the potters to the other. The potters in northern India usually do not kindle a pile of pots or kiln on occasions like *ekadashi* (eleventh lunar day), *amabas* (new moon day), *poonam* (full moon day) and on ceremonial occasions, whereas the potters in southern India do not ordinarily refrain from firing of pots on *ekadashi, amabas* and *poonam* unless they coincide with other ceremonies. On the occurrence of death in the family, the potters observe three to five days' taboo, but not for the entire mortuary defilement period which lasts for ten to eleven days. However, they completely refrain from preparing ceremonial pots during this period. Menstruating women and ritually polluted men are inhibited from touching the wheel, but touching of other tools is strictly not a taboo for them. Other

taboo days are the ceremonial occasions which the potters observe.

From the preceding discussion it is evident that the departmental deities of the potters include Brahmanical gods, animistic deities and deified saints. Among the Brahmanical gods, Visvakarma, Shiva, Vinayak or Ganesh, the therianthropic deity, and Hanuman, the monkey-god, have been mentioned. The animistic deities include certain manifestations of the female Energy like Ashapura, 'Hope-fulfiller' and Khoriya Debi—a malevolent spirit. And the deified saints are: Ramdeo peer, Guru Gorakhnath and Bacharadada.

Visvakarma, 'All-Creator', the non-sectarian deity who is often identified with Prajapati, 'Lord of the creatures', which is also synonymous with Brahma has been mentioned by the potters of Orissa, Bihar, Kangra in the Punjab, and Jammu as their departmental deity of the potters in the southernmost tip of the Indian peninsula and West Bengal. Vinayak or Ganesh is regarded as the departmental deity. Shiva has been referred to as the departmental deity by potters over a large area, which includes Madras, Kerala, Mysore, Andhra Pradesh and parts of Maharashtra and Orissa. In addition, he is also mentioned as the departmental deity by some potters of Rajasthan. It is often held that the worship of Ganesh leads to the popularisation of the cult of Shiva through a process of syncretism. He is mentioned as Shiva's son, but he is at the same time accepted by all sects and worshipped as the 'remover of obstacles' and 'god of luck'. If we accept that he is a member of the Shaiva group, the cult of Shiva among the potters has a distinct distribution in India, which includes Kerala, Madras, Mysore, Andhra Pradesh, parts of Maharashtra and West Bengal across Orissa. In addition, it is sporadically found in Rajasthan. The worship of the wheel and other tools on *Ayudhapuja,* or *Saraswatipuja,* or *Navratri,* or *Dussera* is another significant factor which binds the said area and parts of Gujarat together like the spread of Shaiva cult among the potters discussed above.

RELATIONSHIP : POTTERS versus OTHER CASTES

Apart from supplying earthenware to other castemen of the Indian peasant society, the potter has a varied relationship with them. The nature of such relationship cannot be said to be either ritualistic, or economic or social, or political alone. Perhaps, it is the combination of all the four attributes, resulting from the social coherence of the peculiar Indian caste-ridden society. We shall discuss them area-wise.

In parts of central India, pigs are sacrificed to a deity called Bhainsasur, who is the protector of crops. The Sungaria potters sacrifice pigs on behalf of the Gonds and other peasants. They eat the flesh of the sacrificed animal to make their fortune in trade. In many places in Madhya Pradesh, the potter presents five earthen pots to their clients on *Akti* day (a festival celebrated by married woman in April-May) and receive about one kilogram of grains in exchange. On marriage occasions, the bride is taken to the house of a potter to perform a ceremony called *sohag*. There the bride sits on the wheel, and the potter turns her round only seven times. The potter presents her seven pots to be used in the wedding ceremony for which he receives some clothes, money and grains as presents. On funerals also the potter supplies at least thirteen vessels to his client for ceremonial use.

In the whole of northern, western and eastern India, the potter's wheel is worshipped, at least, by Brahmans and Vaishyas at the time of marriage.

In Madhya Gujarat, among tailors and goldsmiths, the marriage rituals start with the worship of the potter's wheel. The potter receives from them six kilograms of grains and one coconut on this occasion.

In many places of Rajasthan, on the eighth day of *Chaitra* (March-April) women pay a ceremonial visit to the potter's house and return with pitchers on their heads to perform a ceremony called *basora*. Again, on the occasion of marriage, women ceremonially visit the potter's house, worship the wheel and return with eleven to founrteen pitchers. Even among the Muslims, women go singing to the house of the potter on the day of *Sabebarat* in order to fetch new pots.

In the Punjab, a bridegroom of the Baniya caste, before riding on the procession-horse for his marriage, must visit the potter's house, touch the donkey with his foot and feed the animal with sweets.

In Himachal Pradesh, the womenfolk of Brahman and Baniya castes go to the potter's house with seven sweet-cakes and with one hundred and twenty-five Paise as to worship the potter's wheel.

In Jammu, the potter's wheel is worshipped by Baniya women on the occasion of marriage. The potter supplies clay-made Shivlinga or phallus to Brahmans and Rajputs to be worshipped on the marriage occasion.

In Uttar Pradesh, the potter's wheel is worshipped by many castes on the occasion of marriage.

In Bihar, the worship of the potter's wheel is one of the folk rites performed at the *upanayan samskar* (initiation ceremony) of the Brahmans. The potter's wife presents clay elephant to her *jajman* or client at the time of marriage and gets a piece of *sari* in return. Earthen lamps, clay elephants and painted pitchers are supplied by potter women on various ritual and ceremonial occasions like *Chhat, Diwali* and marriage ceremony for which she is paid in both cash and kind. The potter prepares painted clay figures of horse, lion, etc., which comprise the assembly of Salhesh, a deity of Dusadh caste, numerous in Bihar.

On the marriage occasion, the potter in Orissa supplies seven tiny sun-dried pots to his clients and receives grains and clothes in exchange. These pots are placed on the marriage altar (*vedi*) so as to represent the seven *Rishis ;* the marital bondage and obligations are uttered in the name of these *Rishis* in order that they may be vouchsafed by both the parties. Besides these pots, the potter also supplies another fire-baked pot called *mangal handi* or the pot-of-well-being on this occasion. On the day preceding marriage, seven married women (not widows) ceremonially pour sun-dried rice in this pot, which symbolizes abundance of wealth in the marital life of both the bride and bridegroom. The potter receives one rupee in cash and a plate of provisions.

When the incidence of death brings ritual pollution to a family or to an agnatic group, the earthen vessels that are used for cooking food become polluted and are discarded on the day of purification. The potter is obliged to supply the entire set of pots that are required for the replacement of the discarded ones, no matter whether the clients pay for them at the moment or not.

Excepting these two important traditional relationship with his clients, the potter is connected with them in many more ways. For instance, he supplies the green gift pots to his clients which they use in connection with sending food articles to their married daughters. The food-stuff sent in a green pot does not become impure since the pot is *kachcha* or unbaked. He also supplies special ceremonial pots like *kalasa*—the symbol of Vinayak in many rituals, to his clients. Clay votive offerings like horses and elephants are prepared by the potter for his clients on specific orders. The figure of goddess Durga cannot be made without adding a little of potters' clay in Orissa. This little amount of

clay is brought from the potter with elaborate rituals and ceremonies.

The potter is regarded as *Matiguru* or 'master of earth' by the Kondh tribe in Orissa. The Kondhs invite him to propitiate Mother Earth at their *Meriahpuja* ceremony.

The perforated green pot which is required in connection with the burning of the eternal sacred lamp on ritual occasions is supplied by the potter to his clients in exchange of a napkin and twenty-five Paise in cash.

In Andhra Pradesh, the potters, though low in ranking than the Reddy, work as cooks for the latter on ceremonial occasions. For Brahmans and Rajus (Kshatriyas) the potter prepares a *vedi* or altar on occasions like marriage, *agristoma* and *vajapeya*. The painted pots required in connection with sending various gifts to the bride's place and *vice versa* are supplied by the potter to his clients on previous intimation.

In Madras, a number of tiny coloured pots are used in Brahman marriages to represent various gods ; these are supplied by the potter on payment. In southern Madras, the Vehlar potters officiate as priests in the temples of Aiyannar and Pidari.

In Mysore, the Lingayats bring four pots on the occasion of marriage from the potter's house with much solemnity ; these pots are placed at four corners of the marriage altar and connected with a thread to enclose the bride and the bridegroom. In South Kanara, the potters are employed to perform the funeral rites of the agricultural castes called *Kumbharakriya*.

In many places in southern India, clay figurines are procured from the potters for offering to a deity if someone recovers from a severe illness ; the figurine is made of the corresponding sex of the offerer.

Besides the ritualistic relationship with the various castes of the peasant community, the potters are related by *jajamani, karha, atta* or *potala* system with all the agricultural castes to whom they supply pottery articles for domestic and ceremonial purposes. The agriculturists pay them in grains, once a year, at the time of harvest. It is reciprocally obligatory on the part of the client to feed his potter and give presents to him during ceremonial occasions. The *jajmani* system was once prevalent all over India, but nowadays the system is fast decaying due to economic reorganization and rapid urbanization.

POTTERS' CRAFT OF TO-MORROW

With the introduction of metal and porcelain wares, the future of village pottery has been greatly shaken. The growth of population among the potters, the technological backwardness of their tools and techniques of manufacture, the problem of marketing, and the changing values in the profession are some of the problems which confront our potters in the present machine age. Such problems naturally oblige us to discuss them here at some length.

It has been observed that the economic condition of the potters in general is quite unsatisfactory all over the country. And for this matter they are not different from the people of Backward Classes. Most of the potters have to depend largely upon their craft, and there are very few potters who own land. Under the circumstances, they have to take up some subsidiary occupation. Their backwardness in education has forced them not to go beyond labour in agriculture, factories, or elsewhere. Our investigation shows that the largest number of the potters caste earn their livelihood more from subsidiary occupations than from their own hereditary craft. Better remuneration in industries and elewhere has attracted them. However, the reason for the switch-over to other occupations is not only due to the growth of population and general deterioration in the trade but also due to many technical problems in their craft which should be discussed here.

Raw material is one of the important factors on which the quality of pottery depends. Non-availability of good clay is a problem which many potters of the country have to face. Previously at many places, the potters used to collect suitable clay from fallow land free of cost. With the growing value of land, the lands hitherto used by the potters have been brought under cultivation, and the source of clay is being gradually restricted. In certain places, land is given to the potters on lease for a stipulated period, and the renewal of the lease has always been difficult. A particular clay deposit cannot be a perennial source, and thus the problems of clay remains unsolved. The types of wheel which we have seen with the potters of India are fraught with mechanical defects. The process of manufacturing is laborious and time-consuming. The methods of firing are equally inefficient. A large number of potters adopt openfiring, and even those who fire their pots in the kiln fail to construct a permanent roof over the furnace. Therefore, with the onset of rains, the potters has to stop his work. And it is for this reason that pottery work is not followed all the year round.

In view of the above problems, it is necessary that the potters may get the required quality of clay, and for this matter natural resources have to be explored. Good China-clay is available in many places in our country. Necessary arrangements for the transportation of the materials are to be made. The charges for the transportation have to be reasonably low. Clay available in the Ganga bed is equally suitable for pottery work. And we have seen that the best type of pottery in India is produced by clay procured from tank or river bed.

Introduction of an improved type of wheel will be certainly a great step in the progress of pottery manufacture. But for this matter we have to see not only the cost of the wheel but also its adjustment to the conditions and comfort of the worker. For instance, a 'table wheel' is not likely to be popular among the potters of India in general, as they are not used to such posture of sitting. Similarly, any other improved tool can be adopted only when it is cheap, easily available, locally repairable, simple to operate and comfortable to work with.

Any improvement in the technique of manufacture can be suggestd only in relation to the types of articles to be manufactured. We have seen the potters working with ornamental moulds. The pots prepared by such moulds have attracted a large number of urban people, and they have been found in great demand all over the country. Many artistic and drawing-room wares are likely to fetch a good price for the potter. It is necessary that the methods of manufacture be improved. Preparation of clay and colour, use of good mould (preferably of plaster of paris), harmony in the colour-schemes and proper baking of the articles ensure a good prospect of the craft. Bricks and tiles manufacture is equally a profitable industry for them.

A large number of pots break in the existing methods of firing. Improvement in the method of firing is urgently required. A suitable kiln requires capital investment, and considering the poverty of the potter in general a kiln on co-operative basis has to be suggested. In many parts of the country, the potters do have a sort of co-operative firing in their own traditional method, and a careful approach may bring a better type of kiln in which pots can be fired on a co-operative basis all the year round.

The light thrown on the technical problems of the craft will not be sufficient unless we consider the problems in its proper social context. It has been observed that the potters who can improve their condition by wealth and education look down upon

this craft and refuse to go for this work. It is the primary necessity to bring confidence in those potters who have lost it in their traditional occupation.

In spite of the problems mentioned above, the potter's craft has survived in India to a large extent. We have also discussed elsewhere that some of the very ancient techniques in pottery manufacture survive to the present day. It appears to us that if the craft of pottery had not been linked up with the Indian caste system, perhaps, much of it would have been lost long ago.

To sum up. In India, the craft of pottery is an occupation traditionally followed by a particular caste known by different names in different regions of India. This potter's caste is divided into several endogamous groups or sub-castes which are based mainly on territorial or occupational considerations. In general, the potters of south-east India are basically territorial, north-west Indian potters are largely occupational, and in central India, both territorial and occupational divisions prevail. In conformity with this distribution of the potters caste, we find the major techniques employed in pottery manufacture. There appears to be a close affinity between south and east India, north and west India in the types of wheel, the technique of making pots and methods of firing. In central India, we again come to the same combination of south-east and north-west India.

Appendix—I

TECHNICAL TERMS USED

AIR DUCTS : A passage provided in the pile for the circulation of air inside.

ANVIL : A block of stone or baked clay which supports the walls of the pot at the time of beating. It is different from the one on which smiths work metal.

BAG WALL : A clay structure which prevents the intense heat of the oven from striking directly on to the wares.

BEATER : A wooden tool used for beating the pot.

BEATING : A technique of striking the pot between an anvil and a beater.

BEATING BASE : A support for the pot under the process of beating.

BLACK COTTON SOIL : A fine grained black soil found in the 'cotton districts' of Gujarat, Maharashtra and Madhya Pradesh, and also in the Deccan.

BLOCK-WHEEL : A potter's wheel made up of a solid one piece of clay, wood or stone.

BRUSHES : The paint brushes made of hair or bamboo bristles.

BURNISHING : The act of smoothening by friction. It is distinguished from polishing in which oil is applied on the surface of the object during the process.

CENTRING : The clay cylinder is flung on the centre of the wheel which is spinning slowly. The process of accurate placing of clay cylinder in the centre is known as centring.

COILING : A method of building up the walls of pots with the ropes of clay in spiral movement.

COLLARING : A process of throwing in which the collar and the rim of the vessel is formed by the manipulation of thumbs and fingers.

CONING : A process of throwing in which the clay cylinder accurately placed in the centre of the wheel is formed into a tapering figure with a circular base.

CRACKING : A process of breaking up of pots during firing.

CUTTER : A tool with which the pot is detached from the wheel-head.

DIAMOND PATTERN : A design in painted pottery which often forms a rhombodial figure. Also known as lozenge pattern.

DRAWING : The unpacking of kiln.

DUNTING : The cracking of pot in the process of firing, caused by the cold draught of air.

ENGRAVING : The process of producing designs by incision.

FAT CLAY : Highly plastic clay.

FELLY : The rim of a wheel.

FILLETS OF CLAY : A rope of clay.

FLARING : A term applied to the end of a pot when it is shaped out so as to be of increasing diameter towards the end.

FLATTING : A term used here in special sense in which the walls of the pot are built up by the flat bands of clay.

FOOT-WHEEL : A potter's wheel turned by the foot. Also known as kick-wheel.

FORMING : A stage in throwing in which the hollow clay is given the form of the vessel.

FRITS : Are widely used in the manufacture of glazes. They are made by melting a mixture of silica and alkaline salts and finely grinding the glossy substance.

GLAZE : A more or less transparent, thin, glass-like, clear or coloured film, applied to the surface of the pottery articles.

GRID : A design in painted pottery in which the network of lines forms squares.

HOOPS : A thin bamboo splints formed into the shape of a ring.

HORIZONTAL KILN : A type of kiln in which the heat of the oven is draughted horizontally.

INLAY WORK : A technique of decorating the surface of the pot with designs effected by first cutting the surface and then filling with coloured paste.

KILN : An annular or tunnel furnace in which pottery is fired.

LACQUERING : A technique of varnishing the pot with lacquer.

LAMINAR STRUCTURE : Thin walls of the pot composed by the process of beating.

LEAN CLAY : Opposed to fat clay ; not very plastic.

LEVIGATION : The reduction of a substance to a fine powder by grinding in water, followed by fractional sedimentation.

LITHARGE : Lead monoxide, used with paints as a drier.

LOOP PATTERN : A design in painted pottery in which the lines resemble a loop.

LOZENGE PATTERN : A rhomb design in painted pottery. *See* diamond pattern.

MIXING : The process of blending different ingredients into one mass or compound.

MODELLING : Making of pottery only by hand, in which no wheel is employed.

MOP : A bundle of cloth or rags for washing and smoothening.

MOULD : A carved plate or object to shape pottery articles.

MUFFLE : A clay structure which protects earthenwares from direct action of the kiln gases.

NAVE: The centre of the potter's wheel on which the pot is thrown. It is also called the wheel-head.

OPEN FIRING: Is the technique in which the flames play through the exposed wares.

OPENING: A technique in throwing in which the clay cylinder is pressed down to open the mouth.

OVEN FIRING: Is the technique in which the flames creep into the piled wares through an oven.

OXIDATION FIRING: Is the technique in which the combustion is complete and in consequence the burning gases amply supplied with oxygen which causes metals in clay to give their oxide colour.

PARABOLIC OVEN: An oven with an outline of having a broad base and gradually narrowing by curved sides to a blunt apex.

PEEP-HOLE: A hole provided in the wall of the kiln through which the strength of the flame can be exemined.

PILING: The process of loading or accumulating the pots.

PIVOT: A short peg on which the wheel rests and revolves.

PLUNGING: A technique in throwing in which the clay dome is slowly pressed down by driving vertically the thumb of both the hands.

POKER: A wooden rod for stirring fires.

POLISHING: The technique of making glossy surface of the pot by friction with a piece of cloth or a tool in which most frequently oil is applied.

PRELIMINARY HEATING: Heating the pots before actual firing.

PRESSING: The technique of squeezing the clay into shape.

PROPS: A clay post, usually relatively short, on which the pots are arranged at the time of piling.

REDUCTION: In contradiction to oxidation is a condition of burning gases in which combustion is incomplete or smoky, the carbon present having the effect of reducing the oxides to their respective metal forms.

REGUR: *Same as black cotton soil.*

RELIEF DESIGN: A design on pottery by the projection of clay from the plane surface.

ROLLING: A technique of building up the walls of the pot by rolls of clay.

RUDDLE: Red ochre.

SEAL: A clay or wooden stamp for making an impression on the clay walls.

SCOOPING: A technique of shaping the wares by hollowing out the clay ball with a knife.

SCRAPER: An iron or bamboo tool used for removing the excess clay for smoothening the walls of the pot.

SHAFT: A vertical passage.

SHAPER: A tool used for shaping the wares.

SHAVING: To pare off the excess clay with a sharp blade.

SHORT CLAY : Non-plastic clay.

SHRINKAGE : During the process of drying, clays vary in their contraction.

SLICER : A tool used at the time of preparing clay slices.

SLIP : Clay reduced to the conistency of cream by the addition of water, used for coating coarser bodies by dipping or, coloured, for decorative layers of the pot.

SMOKE VENT : A passage for the smoke to emanate.

SMOOTHENING : To make the walls of the pot smooth.

SOCKET : A hollow in which the pivot is fitted.

SOURING : The storage of clay over long periods increases its plasticity by the process of decomposition.

SPOKE : One of the bars of the wheel connecting the nave with the felly.

SPOKED-WHEEL : A potter's wheel in which there is a nave, a felly and the connecting spokes.

SPONGE : An absorbent pad.

STAMPING : The technique of impressing designs on the walls of the pot by a stamp.

STOKE HOLE : A hole or passage through which fuel is supplied into the oven.

STRIP-METHOD : A technique of building up the walls of the pot by strips of clay.

TEMPER : A term applied for the ingredients mixed with the clay to increase its binding capacity.

TENON : The projecting part of a pivot which fits into a socket.

THROWING : The operation of shaping clay on a potter's wheel.

TRAPEZIUM PLAN : The plan of piling pots in the form of a trapezium—a figure bounded by four straight lines, no two of which are parallel.

TURNING : The act of causing the wheel to go round.

TURNING STICK : A stick by which the potters turn their wheel.

TWIRL : *Same as* 'Turning.'

VERTICAL KILN : The type of kiln in which the hot gases are draughted vertically.

WARPING : of pots both whilst drying and firing takes place from approximately the same cause, namely, unequal heating and consequent shrinkage.

WEATHERING : Action or effect of sun, air, rain, etc. on the clay.

WHEEL : A circular frame or solid piece of clay or wood or stone turning on its own axis (pivot) employed by the potter to shape earthenwares.

WIPING RAG : A rag or a piece of cloth used for wiping the surface of the pot.

WOBBLING : An unsteady motion.

TECHNICAL TERMS USED BY THE POTTERS *

AIR-FILLING

havābharnā Bhatinda : Punjab
dāvki Mainpuri : Uttar Pradesh
phasnā Dehradun : Uttar Pradesh

ANVIL

kārāngl Madras
pubitkāl *Kota,* Nilgiris : Madras
tāṭṭukāllu Kerala
tāṭṭekāllu Mysore
rāḷa (rāḷa means stone) Andhra Pradesh
sarsorotum Andhra Pradesh
pinda Orissa
bairā *Maghia,* Mayurbhanj : Orissa
boilā, or boile, or bolā — West Bengal
piri, or pinhore — Malda : West Bengal
boliā Assam
pirhoil Bihar
pīr Azamgarh : Uttar Pradesh
kanderī Dehradun : Uttar Pradesh
donkanā Maham : Himanchal Pradesh
krude Kashmir
kanerā Punjab
pindī Bhatinda ; Punjab ; Almora : Uttar Pradesh ; Dhar : Madhya Pradesh and Rajasthan
dujukiā (small) Jaisalmir : Rajasthan
pindā (big) Jaisalmir : Rajasthan; Jamnagar : Gujarat
kanderī Jaisalmir : Rajasthan
kūnera *Muslim,* Sirohi : Rajasthan
pathnā Bilaspur : Madhya Pradesh
lohandī Bastar : Madhya Pradesh
gundā Nimar : Madhya Pradesh, Poona, Aurangabad ; Nander : Maharashtra
gurī Chhindwara : Madhya Pradesh
kunere Jamnagar : Gujarat
penlu Kaira : Gujarat
kundhro Kutch : Gujarat
goṭā Chanda : Maharashtra
gund Poona, Kolhapur : Maharashtra
gundi Nasik : Maharashtra
dagar Ratnagiri : Maharashtra
guno (guno means stone. No special term for anvil) Goa

APICAL SHAFT OF AN OPEN PILE (POT) FOR FIRING

mukhi Udaipur : Rajasthan
nāri, or nāli — Madhya Pradesh ; Rajasthan and Uttar Pradesh

ASH

sāmbāl Madras & Andhra Pradesh
buṛdi Kerala
budi Mysore
pāusa Orissa
rākh, or rākhauṛī — Rajasthan and Madhya Pradesh

ASH BED

jhālā Ajmir : Rajasthan
khāyenī Kaira : Gujarat
darān Maharashtra

BASE FOR PIVOT

cākhtar Almora : Uttar Pradesh
paṛ Rajasthan
śur *Muslim,* Sirohi : Rajasthan

BASE FOR SOCKET

idumam Madras
phuriā Andhra Pradesh, *Telugu,* Calicut : Kerala
phuriāgubbi Mysore
malā Orissa

BEATER

pāḷgāi (small) Madras
taṭṭũpalhe (big) Madras and Kerala
pubitkud *Kota,* Nilgiris : Madras
cāṭunki (small) Kerala
kotṭupālkā (big) Kerala
āḷige Mysore

* The transcription of the terms in Roman script has been done according to the local pronunciation but not according to the traditional orthography. When a particular term in respect of any particular item does not occur all over a linguistic area and is confined to a single potter group or to a particular district, the name of such potter group or district has been mentioned against it.

śolā Mysore
bālā Andhra Pradesh
salpa Andhra Pradesh
piṯunī (small) Orissa
piṯanā (big) Orissa
piṯnā Bihar, West Bengal ; Bilaspur : Madhya Pradesh ; Chanda : Maharashtra
piṯan Malda : West Bengal
pety *Paliya,* Malda : West Bengal
piṯoni Assam
thāpā Dehradun : Uttar Pradesh ; Sirmaur : Himachal Pradesh ; Bhatinda : Punjab ; Jodhpur, Ajmer and Jaisalmir : Rajasthan ; Panna and Chindwara : Madhya Pradesh
dāvlā Almora : Uttar Pradesh
thāpī Azamgarh : Uttar Pradesh ; Taipur : Rajasthan
thāthā Maham : Himachal Pradesh; Jammu and Kashmir
ṭaṯvān Srinagar : Kashmir
thāthū Kangra : Punjab
thatmā Jullunder and Amritsar : Punjab
thappī Udaipur : Rajasthan
thāpli (small) Jaisalmir : Rajasthan
thāpā (big) Jaisalmir : Rajasthan
pharā / or / phārā } *Muslim,* Sirohi : Rajasthan and Nasik : Maharashtra
ṭaplā Dhar and Nimar : Madhya Pradesh ; Jamnagar : Gujarat
phalā Nimar : Madhya Pradesh ; Aurangabad, Poona and Ratnagiri : Maharashtra
dol (flat surfaced) Ujjain : Madhya Pradesh
saua (concave surfaced) Ujjain : Madhya Pradesh
phari Jamnagar : Gujarat
pharai Kutch : Gujarat
ṭaplu Kaira : Gujarat
peṭni Ratnagiri : Maharashtra
thapṯi Nander : Maharashtra
pitnī Goa

Beater (Engraved)

āccapāḷgāi Madras
āccakud *Koṭa,* Nilgiris : Madras
āccapāḷhe Kerala
āccusaḷpa Andhra Pradesh

Beating

cāṭṭu / or / tāṭṭu } Madras
pubit *Kota,* Nilgiris : Madras
tāṭṭu / or / tāṭṭutātta Kerala and Mysore
tāṭṭe Andhra Pradesh
tāribā Orissa
piṭāno West Bengal
ṭoknā Bihar and Maharashtra
piṯnā Almora : Uttar Pradesh
garhnā Dehradun : Uttar Pradesh ; Maham : Himachal Pradesh ; Rajasthan ; Madhya Pradesh and Jamnagar : Gujarat
karhnā Amritsar : Punjab
sapā *Muslim,* Sirohi : Rajasthan
ṭipnā Kaira : Gujarat

Beating Base

ilikā *Kota,* Nilgiris : Madras
maḷā (earthen) / or / kunda (earthen) } *Maghia,* Mayurbhanj : Orissa
dāba (wooden) *Maghia,* Mayurbhanj : Orissa
āthāl (earthen) West Bengal
ketho (wooden) West Bengal
kaṭthāri / or / āthuri } Malda : West Bengal
āthāli (earthen) Assam
āthāil (earthen) Bihar
chinā (earthen) Azamgarh : Uttar Pradesh
kundi (basket) / or / kund (basket) } Rajasthan
āthri (earthen) Ajmer and Jaisalmir : Rajasthan
kunrā (basket) Panna : Madhya Pradesh
arthrā (earthen) Panna : Madhya Pradesh
kundh (basket) / or / chāli (basket) } Nimar : Madhya Pradesh
beṭ (basket) / or / kavan (basket) } Bastar : Madhya Pradesh
kāndh (basket) / or / ṭaṭrā (basket) } Akola : Maharashtra

Beating Pit

piṯāgāta Dhenkanal : Orissa
khamnā Jamnagar : Gujarat
jarnī Ratnagiri : Maharashtra

Bottom Hole on an Unfinished Pot

cheda / or / kanā } Orissa
kana / or / tindho } Gujarat and Maharashtra

Chaff for Tempering Clay

cānṯu Madras and Kerala
casu / or / tusa } Orissa
bāni Ranchi : Bihar

Clay

mānnu Madras and Mysore
mānn Kerala

māṭṭi Andhra Pradesh
māṭi Orissa
entel Malda : West Bengal

CLAY (ALLUVIAL)

banamāṭi Orissa
jalodh Northern India
pānnā Rajasthan
kāmp Gujarat
poita Maharashtra

CLAY (BLACK)

kārpumānnu Madras and Mysore
kārrmān *Kola,* Nilgiris : Madras
kārpumānn Kerala
kārrmāṭṭi Andhra Pradesh
kaḷamāti Orissa
pākhvā Bihar
kālārā Rajasthan
kāla Gujarat
sāierāni Kutch : Gujarat
citaki Madhya Pradesh
kāli Maharashtra

CLAY (BROWN)

khāsuāmiṭṭi Northern India

CLAY (CLAYEY)

jgilmānnu Mysore
cikkanamāṭi Orissa
cikāni Northern India
gāro Rajasthan

CLAY (HARD)

kārpumānnu Madras
vaṭṭalmānn Kerala
āṇṭṭumātti Andhra Pradesh
maṭāḷamāṭi Orissa
rormāṭṭi Northern India
dermeci Kashmir

CLAY (MARL)

bhelāmānnu Southern India
cunāmāṭi Northern India
mālāmāṭṭi Maharashtra

CLAY (OCHRE)

siman Madras
ceman Kerala
bāmmānnu Mysore
bāmmāṭṭi Andhra Pradesh
bingam Andhra Pradesh
dhāu Orissa
rangmāṭi West Bengal
rang Assam
geru Bihar, Punjab, Rajasthan, Gujarat, Madhya Pradesh, and Maharashtra
kabiś Uttar Pradesh
hirminch Ajmer and Udaipur : Rajasthan
rāmraj Ajmer : Rajasthan
bāni Jaisalmir, Jodhpur, Bikaner : Rajasthan ; and Kaira, Jamnagar and Bhuj : Gujarat

CLAY (RED)

simānnu Madras
simann Kerala
cemānnu Mysore
ermāṭṭi Andhra Pradesh
nālmāti Orissa
lālmiṭṭi Northern India

CLAY (SALINE)

luṇimāṭi Orissa
khāṛimāṭi Orissa
khāṛimāṭi Orissa
khāro Gujarat

CLAY (SANDY)

māṇālmannu Madras and Mysore
icigāmānn Kerala
māsimiṭṭi Andhra Pradesh
bāliāmaṭi Orissa
bālimāṭi West Bengal
bāluāhi Bihar
retili Uttar Pradesh and Punjab
bundā Rajasthan
ātār Gujarat
dārā Madhya Pradesh

CLAY (SOFT)

naramamāṭi Orissa

CLAY (YELLOW)

pillī, or perā } Northern India
kārāili Bihar

CLAY (WHITE)

bhelāmannu Madras
ayurmannu *Kota,* Nilgiris : Madras
bingāmāṭṭi Andhra Pradesh
dudhiāmāṭi Orissa
dudhiā Northern India
dholī Rajasthan

CLAY DISK (USED FOR BUILDING THE BOTTOM OF A POT)

cābar West Bengal
carakkāṭā Assam
bur Chanda : Maharashtra

CLAY LUMP (FOR THROWING POTS)

māṭipendulā Orissa
pīnā, or bīha } Maham : Himachal Pradesh
miṭh Srinagar
pindā Rajasthan
terī *Muslim,* Sirohi : Rajasthan
pend Maharashtra
goṭe Ratnagiri : Maharashtra

CLEANING

ārisu Mysore
gārgāra Andhra Pradesh
saphākaribā Orissa

Cutter

usi (needle) or usiurundāi (needle) } Madras
cārāṭu (thread) Kerala
usi (needle) Kerala
suji (needle) Mysore
sutram (thread) Mysore
mullu (needle) Andhra Pradesh
dhāram (thread) Andhra Pradash
tāgi (thread) or kāṭuṇisutā (thread) } Orissa
sebon (thread) West Bengal
kāṭā (needle) West Bengal
kāṭni (thread) Assam
ceṇni (thread) Bihar
śes (thread) *Muslim,* Sirohi : Rajasthan

Cutting

ciē Madras
kāṭibā Orissa

Design

citra Orissa
citar Gujarat

Double Wheel and its Parts

topī (upper disk Jammu : Kashmir ; and Amritsar : Punjab
cāk (lower disk) Jammu : Kashmir
thār (lower disk) Amritsar : Punjab
tīr (pivot) Jammu : Kashmir ; and Amritsar : Punjab

Drying

unākku Madras
unānāku Kerala
ārisu Mysore
vanākāṭe South Kanara : Mysore (Tulu)
ādugāṇṭu Andhra Pradesh
sukheibā Orissa
sukhāno West Bengal
vākbar *Muslim,* Sirohi : Rajasthan

Engraver

usikārr (iron) Kerala
kārr (iron) Mysore
churī (iron) Malda : West Bengal
konchā (bamboo) Malda : West Bengal
pabherī Punjab
phāber Maharashtra

Engraving

bhettu Madras
ketuni Tulu : Mysore
cekku or bālucu } Andhra Pradesh
kuṭikama Orissa
likhnu Maham : Himachal Pradesh
vel Rajasthan

Embossing

chapāmāriba Orissa
ānsā *Muslim,* Sirohi : Rajasthan

Felly

tikri Madras
āri *Telugu,* Calicut : Kerala and Andhra Pradesh
bālāyu Mysore and Andhra Pradesh
poi Orissa
manu *Telugu,* Aurangabad : Maharashtra
pend Nander : Maharashtra
cāk Osmanabad : Maharashtra

Firing, Open

koltu Madras
koltukā Kerala
āgiiṛu Andhra Pradesh
bhāṭidebā Orissa
āvā Uttar Pradesh ; Himachal Pradesh ; Punjab ; Bihar ; Madhya Pradesh ; Ganganagar : Rajasthan ; Chanda and Aurangabad : Maharashtra
nivārā Rajasthan ; Dhar : Madhya Pradesh
nyāo Jaisalmir and Jodhpur : Rajasthan
āvrā Udaipur : Rajasthan
hāo Jaipur : Rajasthan
nihāi Churu : Rajasthan
nimbarā *Muslim,* Sirohi : Rajasthan
nivādā Kaira : Gujarat
ahvāy Nimar : Madhya Pradesh
pijāvā (trapezium shaped pile) Darbhanga and Champaran : Bihar
paṭmā (trapezium shaped pile) Jullunder : Punjab

Firing, Oven

koltu Madras
koltukā Kerala
binkiidu Mysore
ārluni South Kanara : Mysore (Tulu)
āgiiṛu Andhra Pradesh
uhādebā Orissa
poṛāno West Bengal
āvā Maharashtra
bhaṭṭi Chanda : Maharashtra

Flattend Clay Strip

paṭi Orissa
paṭiā Gujarat
lori Maharashtra
lelṭi Nander : Maharashtra

Hoop

panjarā Orissa
korei West Bengal

Kiln

vāmu (horizontal) Andhra Pradesh
bhāṭi (vertical) Orissa
pon (horizontal & vertical) West Bengal
bhātā (vertical) *Bengali,* Assam
pun (vertical) *Paschima,* Assam
paghāli (vertical) *Kolita,* Assam
jhokuā (vertical) Bihar
cumbā (vertical) Jammu : Kashmir
kondā (vertical) Srinagar : Kashmir
bhaṭṭi (vertical) Jullunder : Punjab

Kneading

kumu Madras
kurrekā Kerala
irku Mysore
kāṛenkuni South Kanara : Mysore (Tulu)
tokhom Andhra Pradesh
cakaṭibā Orissa
chānā West Bengal
maṭichenā Assam
maṭhnā Dehradun : Uttar Pradesh
lātdīn Kashmir
lātārna Bhatinda : Punjab
gundhnā Rajasthan
marā *Muslim,* Sirohi : Rajasthan
bāriyu / or / māriyu } Jamnagar : Gujarat
khundnā / or / masalānā } Kaira : Gujarat
curnā Chanda : Maharashtra

Mixing

kālābhan Madras
kālāka Mysore
kālāduni South Kanara : Mysore (Tulu)
kālāpamu Andhra Pradesh
mileibā Orissa
milānā Rajasthan

Mop

tuṇi Madras ; Kerala
saurārabi *Kola,* Nilgiris : Madras
baṭe Mysore
bātā / or / guṛā } Andhra Pradesh
pātā Warangal : Andhra Pradesh
nentakanā / or / sarka } Orissa
nāṭā West Bengal
palū *Muslim,* Sirohi : Rajasthan
paṭṭi Jamnagar : Gujarat
poṭī Chanda : Maharastra
kanetare Kolhapur : Maharashtra
kanere Ratnagiri : Maharashtra
phālī Goa

Mould

kārū Madras ; Mysore
kārru Kerala
ācca *Telugu,* Calicut : Kerala
accu Andhra Pradesh
chānca Orissa
pārahi / or / sānca } West Bengal
sāncā Punjab, Rajasthan, Gujarat and Uttar Pradesh
paṭān Kangra : Punjab
pharmā Ajmer : Rajasthan
bībā Mehsana : Gujarat
morī Nimar : Madhya Pradesh

Moulding Disk

ādipāḷka Kerala
gaṛhāpaṭā / or / piṛha } Orissa
piṛhā Bihar
kosā Kangra : Punjab
sutal Akola : Maharashtra
sevtā Poona : Maharashtra
māthā Nasik : Maharashtra

Muffle (a Clay Structure)

chāli Assam
jānt West Bengal

Nave

kuriś Madras
cakrambodu *Telugu,* Calicut : Kerala
cakrampeṭu Mysore
bodu Andhra Pradesh
cakamunda / or / padma } Orissa
padam / or / cākermāthā } West Bengal
cānd / or / mathni }
ajālā Jaisalmir : Rajasthan
mātho Udaipur : Rajasthan
othrā Kaira : Gujarat
māthā Maharashtra
tal Kolhapur : Maharashtra
gārī Ratnagiri : Maharashtra
peṭu *Telugu,* Aurangabad : Maharashtra
cakonī Goa

Notch (for the Attachment of the Turning Stick)

kujirāikāṭai Madras
gāṛha Orissa
chenā West Bengal and Assam
cākuitgāṛha Bihar
eran *Muslim,* Sirohi : Rajasthan

Oven

culgāi Madras

culhi Kerala
hāene Mysore
vāmu Andhra Pradesh
vāmi Warangal: Andhra Pradesh
uhā Orissa

PAINTING

vārṇamkuṛu Andhra Pradesh
citrakaribā Orissa
ciṭan Sirmaur: Himachal Pradesh
buṭepāvna Punjab
māṛnā Jodhpur: Rajasthan
likẖnā *Muslim,* Sirohi: Rajasthan
madār Madhya Pradehh

PAINTING IN BLACK COLOUR

rangtarā *Muslim,* Sirohi: Rajasthan

PAINTING IN RED COLOUR

tāvatara *Muslim,* Sirohi: Rajasthan

PAINT BRUSH

tubhal (cloth) Madras
tupar (cloth) Andhra Pradesh
tuli (cloth) Orissa
vadi (cloth) *Muslim,* Sirohi: Rajasthan
kunci Rajasthan

PASSAGE FOR LOADING POTS IN A VERTICAL KILN

bor Srinagar: Kashmir

PIVOT

kurr Madras
tirūbmalā *Kola,* Nilgiris: Madras
poṭi Kulalanair, Cannanore: Kerala
muḻā *Telugu,* Calicut; Kerala
vanādī Mysore
kārā Telengana: Andhra Pradash
malānṭam Coastal Andhra Pradesh
buddu Warangal: Andhra Pradesh
gulā Orissa
suḻā *Maghia,* Mayurbhanj: Orissa
gulā / or / khunṭi / or / āl — West Bengal
nālikhāl / or / kilā — Assam
suḻā Bihar
khuṭṭā Darbhanga: Bihar
bipū Almora: Uttar Pradesh
kīlī Dehradun: Uttar Pradesh
cokillā Sirmaur: Himachal Pradesh
kāṇṭā Moham: Himachal Pradesh
sumbhā Amritsar: Punjab
khil Jaisalmer: Rajasthan
khilarā *Muslim,* Sirohi: Rajasthan
khunṭī Madhya Pradesh; Maharastra; Goa; and Bikanir: Rajasthan
bilāri Dhar: Madhya Pradesh
pāv Nimar: Madhya Pradesh
dhārī *Hindu,* Jamnagar: Gujarat
ārī *Muslim,* Jamnagar: Gujarat
meṛā Osmanabad: Maharashtra

POLISHING

kāṭāikal / or / bheḻākā — Madras
maṇikkā / or / irūkam — Kerala
minckāṛu Mysore
ṭikuṇi South Kanara: Mysore (*Tulu*)
uṭanam Andhra Pradesh
cikaṇeibā / or / pāliskaribā — Orissa
mājan West Bengal
mānjnā Dehradun: Uttar Pradesh
kotcaṛhānā Maham: Himachal Pradesh
goranā Udaipur: Rajasthan
ghotāi Udaipur and Sri Ganganagar: Rajasthan; Dhar: Madhya Pradesh; Akola: Maharashtra
ghoṭnā *Muslim,* Sirohi: Rajasthan
uṭan *Telugu,* Aurangabad: Maharashtra

POLISHING TOOL

bheḻākāl (pebble) Madras
kārmuṛkāi (a kind of large seed) Madras
kāṇaṅkāi (a kind of tiny seed) Madras
cirāṭṭā (coconut shell) Kerala
maṇikkāl (pebble) Kerala
kānkarkāi (a kind of large seed) Kerala
miñckāi (pebble) / or / ujiākāl (pebble) — Mysore
rāi (pebble) / or / rātu (pebble) — Andhra Pradesh
bāti (pebble or stone lead) Orissa; Jullunder: Punjab
or
stone bead
sāmukā (Oustershell) Orissa
gendā (snail's shell) Orissa
majni (earthen) Malda: West Bengali; Assam
kānchuli (earthen) Malda: West Bengal
ghunṭā (pebble) Udaipur: Rajasthan
ghoṭnā (lac bead) *Muslim,* Sirohi Rajasthan
ghuṭni (lac bead) Panna: Madhya Pradesh
mankā / or / manṭhā — glass beads — Madhya Pradesh and Maharashtra
mālā Gujarat

Prop

gunnā Andhra Pradesh
ṭhekrā Orissa
ṭhikri Bikaner: Rajasthan
dhovri Churu: Rajasthan
iṭkiniā Jaisalmer: Rajasthan
baṭṭiā Chanda: Maharashtra

Pulverization

guṭam Andhra Pradesh
gundakaribā Orissa
dagun Srinagar: Kashmir

Scraper

irumbsaṭam (bamboo) Madras
saṭam (bamboo) or kārikāthi (iron) } Kerala
curū (bamboo) Mysore
inupāti (iron) Andhra Pradesh
rampākāṭhi (bamboo) } Orissa
canchāpātia (iron) }
cācuā (iron) West Bengal
kām (iron) Assam
rāndā Himachal Pradesh
khurpā Bikaner and Jaisalmir: Rajasthan
khulāvo Ajmer: Rajasthan
kāmvi (iron) Chanda: Maharashtra
vaccā (bamboo) Chanda: Maharashtra

Scraping

curāṇṭṭu Madras
cirekkā Kerala
kere Mysore
kerepuni South Kanara: Mysore (*Tulu*)
kelū Andhra Pradesh
cānchibā Orissa
chilnā Maharashtra

Seal

ācca Madras; and Kerala
āccu Mysore; and Andhra Pradesh
chapā Orissa
phulam Assam
ṭhppa Almora: Uttar Pradesh
chāmp Srinagar: Kashmir
sumbhā or buṭā } Jullunder: Punjab
rāch Bhatinda: Punjab
gargāri (roller seal) *Muslim,* Sirohi: Rajasthan
chāp Udaipur: Rajasthan
khuṭnī Ajmer: Rajasthan
bhāot Jodhpur: Rajasthan
chāpā Bastar: Madhya Pradesh
vibhā Jamnagar: Gujarat
bhingdi Akola: Maharashtra
dasā Kolhapur: Maharashtra
kārab Poona: Maharashtra
ṭhāsā Kolhapur: Maharashtra

Shaper

vaḻecal (bamboo) Madras
māṇāyankaṭai (horn) Madras
kāmbi (bamboo) *Kola,* Nilgiris: Madras
kebāli (bamboo) or mulāālaku (bamboo) } Kerala
dābe (bamboo) Mysore
idrubādā (bamboo) or sārebāda (bamboo) or cavkā (bamboo) } Andhra Pradesh
ancākāṭhi (bamboo) Orissa
ucco (bamboo) or cīari (bamboo) } West Bengal
kānrā (bamboo) Malda: West Bengal
kām (bamboo) Assam
kāmvaṭ Maharashtra

Shaving

kundibā Orissa
kharad Rajasthan; Uttar Pradesh; and Punjab
gholā Kaira: Gujarat

Shaving Tool

kunda Orissa
malāri *Muslim,* Sirohi: Rajasthan
kharpari Gujarat
kharād Rajasthan; Uttar Pradesh; and Punjab

Sieve

seledāi or cālāṭai } Madras
cālyāl or cālṭā } Kerala
jārdā or jāladi } Mysore
ccāni Andhra Pradesh
cāluni Orissa
āonā or cālon } West Bengal
cebon Malda: West Bengal

Sifting

cālāṭai Madras
cālikā Kerala
jālisu Mysore
jāliṇcu Andhra Pradesh
caleibā Orissa
chanū Kashmir
garī Gujarat

Slicer

kaīuṇi Orissa
kaṭni Malda: West Bengal

Slip

paḷanti Orissa
rang Assam

Slipping

simānnkurru Madras
simānnkuṛu Kerala
cemannkuṛu Mysore
errmāṭḷikuṛu Andhra Pradesh
paḷateibā Orissa
dhā *Muslim,* Sirohi: Rajasthan

Smoke Vents

kāve Madras; Kerala
kudrulu Andhra Pradesh
dhuānali Orissa
moriyā Amritsar: Punjab

Smoothening

cī Madras
cikā Kerala
cibhu Mysore
samvārana Rajasthan
hamālanā *Muslim,* Sirohi: Rajasthan

Socket

kundikāl Madras; Kerala
benikā *Kota,* Nilgiris: Madras
ārikāl *Telugu,* Calicut: Kerala
gubbikāl Mysore
gubbi Andhra Pradesh
nāllāsarpu Warangal: Andhra Pradesh
nāhi Orissa
sil West Bengal; Bihar, and Assam
khāl West Bengal
guṛi Assam
sillā Bihar
patheri Uttar Pradesh
pathar Himachal Pradesh
cakvat Kashmir
cuthi Punjab
giri Sri Ganganagar: Rajasthan
giṭi Jaisalmir: Rajasthan
pani *Muslim,* Sirohi: Rajasthan
gari Udaipur: Rajasthan; Kaira: Gujarat
puria Jodhpur: Rajasthan
gulvi Akola: Maharastra
dolā or ākhi } Nander: Maharashtra
dagar or gundo or bolā } Ratnagiri: Maharashtra
gorī Nasik: Maharashtra
gorī Chanda: Maharashtra
manī Osmanabad: Maharashtra
guno Goa

Souring

maṭipaceibā Orissa
maṭipācan West Bengal

Spoke

māram Madras; Kerala
āce Mysore
chei Andhra Pradesh
ārā Vizag: Andhra Pradesh; Maharashtra; Kalia: Gujarat
ara Orissa
bāhī *Maghia,* Mayurbhanj: Orissa; Bihar
bāhā or hātā or poti } West Bengal
cākjāmin Assam
vahũā Darbhanga: Bihar
belgo Ranchi: Bihar
bay Almora: Uttar Pradesh
phāngriā Sirmaur: Himachal Pradesh
gāle Udaipur: Rajasthan
cākhar Jaisalmir: Rajasthan
bāhiñ Madhya Pradesh
are or hāthle } Kalhapur: Maharashtra
tīr Ratnagiri: Maharashtra
arvai Chanda: Maharashtra
kusle Osmanabad: Maharashtra
chei *Telugu,* Aurangabad: Maharashtra
khuti Goa

Stoke Hole

culhebāsal Madras
mālgoṭa Kerala
binkipei Mysore
vāmupoi Andhra Pradesh
poyelu Warangal: Andhra Pradesh
bhāṭimũha Orissa
muks West Bengal; Assam; Chura: Rajasthan
mohatā Bihar
mug Punjab
barnā Sri Ganganagar: Rajasthan
bādī or gārī or nālī } *Muslim,* Sirohi: Rajasthan
nālī Udaipur: Rajasthan; Aurangabad: Maharashtra
bārān Gujarat
jālī Nasik: Maharashtra
tond Akola and Ratnagiri: Maharastra
phuddār or bāre or dār } Akola: Maharashtra

Throwing

ākārkuṛu Mysore
ākāramkuṛu Andhra Pradesh
gadhibā Orissa
mileṭ Sri Ganganagar: Rajasthan

Toys

kandhei Orissa
ramkara Rajasthan; Gujarat

Turning

kāṛeyuni Madras
kari—Mysore
sārekāṛe Andhra Pradesh
ghureibā Orissa
ghurāno West Bengal

Turning Stick

kumbu Madras
madplāci Kerala
don Mysore
sārekāre Andhra Pradesh
ghurābāṛi Orissa
cāklāri, or cāklāṭhi } West Bengal
cākuit Bihar
cāklur Kashmir
cākpherni Rajasthan
cākleṭi Udaipur: Rajasthan
śatākel *Muslim,* Sirohi: Rajasthan
caklāṭ *Muslim,* Jamnagar: Gujarat
cāklākṛi *Hindu,* Jamnagar: Gujarat
cakoṛi Maharashtra
cakti Panna: Madhya Pradesh

Unfinished Pot (after throwing and before Beating)

pandā Orissa
boncā Bihar
muleṭ Ajmir: Rajasthan
marāt *Muslim,* Sirohi: Rajasthan
murāvat Akola: Maharashtra
chāl Ratnagiri: Maharashtra

Water Pot

toṭi Southern Madras
seṭi Northern Madras
baṭigāṛigī *Kota,* Nilgiris: Madras
kuṛam Kerala
maṛke Mysore
cyādākunda Andhra Pradesh
kundā Vizag: Andhra Pradesh
gaṛhāsarei Orissa
caklā *Maghia,* Mayurbhanj: Orissa
hamāni, or pātil, or ātāli } West Bengal
ātāli Assam

Wheel

cakram Madras; Kerala
tigrī *Kola,* Nilgiris: Madras
cakr Mysore
cāri Andhra Pradesh
caka Orissa
cāk West Bengal; Rajasthan; Madhya Pradesh; Gujrat, and Maharashtra
crit Kashmir
cakro Kutch: Gujarat
remeakr Mehsana: Gujarat
jātiṛ Goa

Wheel Pit

cākapheraṇikhāla Orissa
ckārgārto West Bengal
cākkāpheri Rajasthan

APPENDIX III

A SCHEDULE FOR THE STUDY OF POTTERS AND THEIR CRAFT

Basic Data

NAME OF THE VILLAGE, TAHSIL AND DISTRICT

LOCATION
Why do the potters live there?

NUMBER OF POTTERS

POTTER'S MOBILITY
Which markets do they go?
How many miles?

Social Aspects

SOCIAL STATUS
Place of potters in regional social hierarchy

POTTERS AND THEIR PATRONS

CLAN ORGANIZATION
Whether clans are organized in hierarchical order?

SOCIAL GROUPS
Social division on the basis of specialized art

POTTERS' PANCHAYAT

HINDU AND MUSLIM POTTERS

TRANSMISSION OF THE CRAFT
Educating the young

CO-OPERATION AND COMPETITION

(a) *Division of labour according to age and sex*
(b) *Co-operative kilns*
(c) *Competition in sale and quality*
(d) *Trade secret*

Technological Aspects

IMPLEMENTS

(a) *The potters' wheel*
(b) *Beater and anvil*
(c) *Sieve*
(d) *Polishing beads*
(e) *Earthen base*
(f) *Miscellaneous tools*

CLAYS

(a) *Source*
(b) *Crietaria of selecting clays*
(c) *Preparation of clays*

THE MAKING OF CLAY SHAPES

(a) *Wheel-thrown pots*
(b) *Hand-modelled pots*

COMPLETING THE POT

(a) *Drying*
(b) *Beating*
(c) *Polishing*
(d) *Decoration and preparation of colouring materials*

KILNS AND FIRING

(a) *Type of kilns*
(b) *Arrangement of pots*
(c) *Fuel*
(d) *Place*

POTS

(a) *Forms*
(b) *Designs*
(c) *Use*

IMPROVED TECHNIQUES

Economic Aspects

WORKING ASSISTANTS
(a) *Number of persons engaged*
(b) *Categories of labour*

WORKING HOURS
Time taken in each process

MARKET
(a) *Home consumption*
(b) *Direct sale to the villagers*
(c) *Intermediaries*
(d) *Sale in the markets—direction and distance of the market attended*

Ritual Aspects

THE DEPARTMENTAL DEITY
The deity associated with the potters' craft and clan deity

CEREMONIES
The ceremonies attached to the craft of potters and their significance

TABOOS
Taboos observed at the time of menstrual period, child birth, death and other pollution. Any taboo throughout the year. Tabooed days of work

WORSHIP OF THE POTTERS' WHEEL

INDIA

SCALE

MILES 100 0 100 200 300 MILES

K.M. 100 0 100 200 300 400 500 K.M.

72° 80° 88° 96°

36° 28° 20° 12°

JAMMU AND KASHMIR

H.P.

H.PRADESH

PUNJAB

UTTAR PRADESH

RAJASTHAN

BIHAR

SIKKIM

BHUTAN

N. E. F. A

ASSAM

NAGALAND

MANIPUR

TRIPURA

W. BENGAL

GUJARAT

MADHYA PRADESH

ORISSA

DIU (G. D. & D.)

DAMAN (G.D.& D.)

DNH

MAHARASHTRA

ANDHRA

GOA

(GOA DAMAN AND DIU)

MYSORE

KERALA

MADRAS

LACCADIVE MINICOY & AMINDIVI IS. (INDIA)

ANDAMAN AND NICOBAR ISLANDS (INDIA)

REFERENCE

TYPES OF BASE

SOLID BASE .....

NO BASE .....

SOFT BASE .....

STATE BOUNDARY .....

INTERNATIONAL BOUNDARY .....

DRAWN BY R.C. DEY H.A

REG. NO 2979'E/61—537'67.

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